BRITAIN'S LEADING MAGAZINE FOR AMIGA OWNERS

AMIGA FORMAT

ISSUE 7 / FEB 1990 / £2.95



GRAPHICS
Tricks of the trade from the master artist

PROGRAMMING
Menace and Blood Money author tells all

MUSIC
You too can become a keyboard maestro

SECRETS REVEALED

The experts help you to get the most from your Amiga

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Indispensable guide for the new Amiga owner

GAMES
Definitive reviews of all the big games

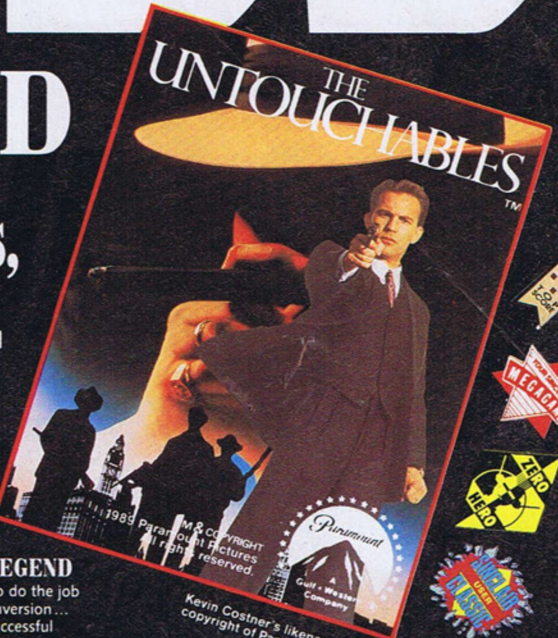
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HANDS





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SIX INSPIRED

action sequences put you in control of Elliot Ness's elite squad of crime-busters.

ALLEYWAY SHOOTOUTS, THE BORDER RAID,

The Railway Station confrontation and Warehouse bust culminating in the thrilling denouement of a

ROOFTOP DUEL

as you re-live the knife edge existence of Ness in his struggle against the retribution of Capone!

THE UNTOUCHABLES – LIVE AN AMERICAN LEGEND

"an absolute corker of a game ... as smooth and polished as you can get, animation is top notch ... a brilliant film conversion" Games Machine

"a fine example of how to do the job properly ... a cracking conversion ... easily one of the most successful licences to date" Sinclair User



BLOCKBUSTER FOLLOW-UP TO LAST CHRISTMAS'S No. 1 HIT... OPERATION WOLF...

NOW WITH TWICE THE ACTION, TWICE THE FUN, TWICE THE CHALLENGE

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TAITO

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USE THE LASERSIGHT

or the bulletproof vest, but watch out for

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Operation Thunderbolt the incredible Taito coin-op conversion brought NOW to your home computer.

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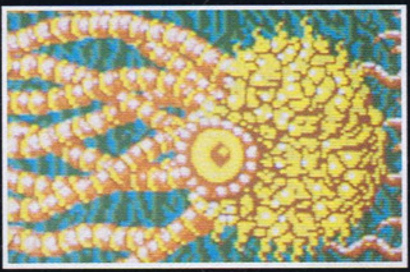


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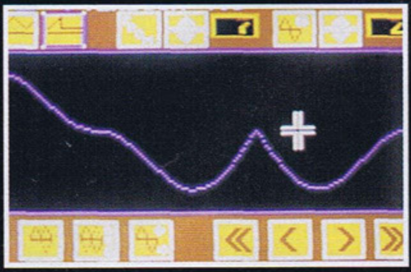
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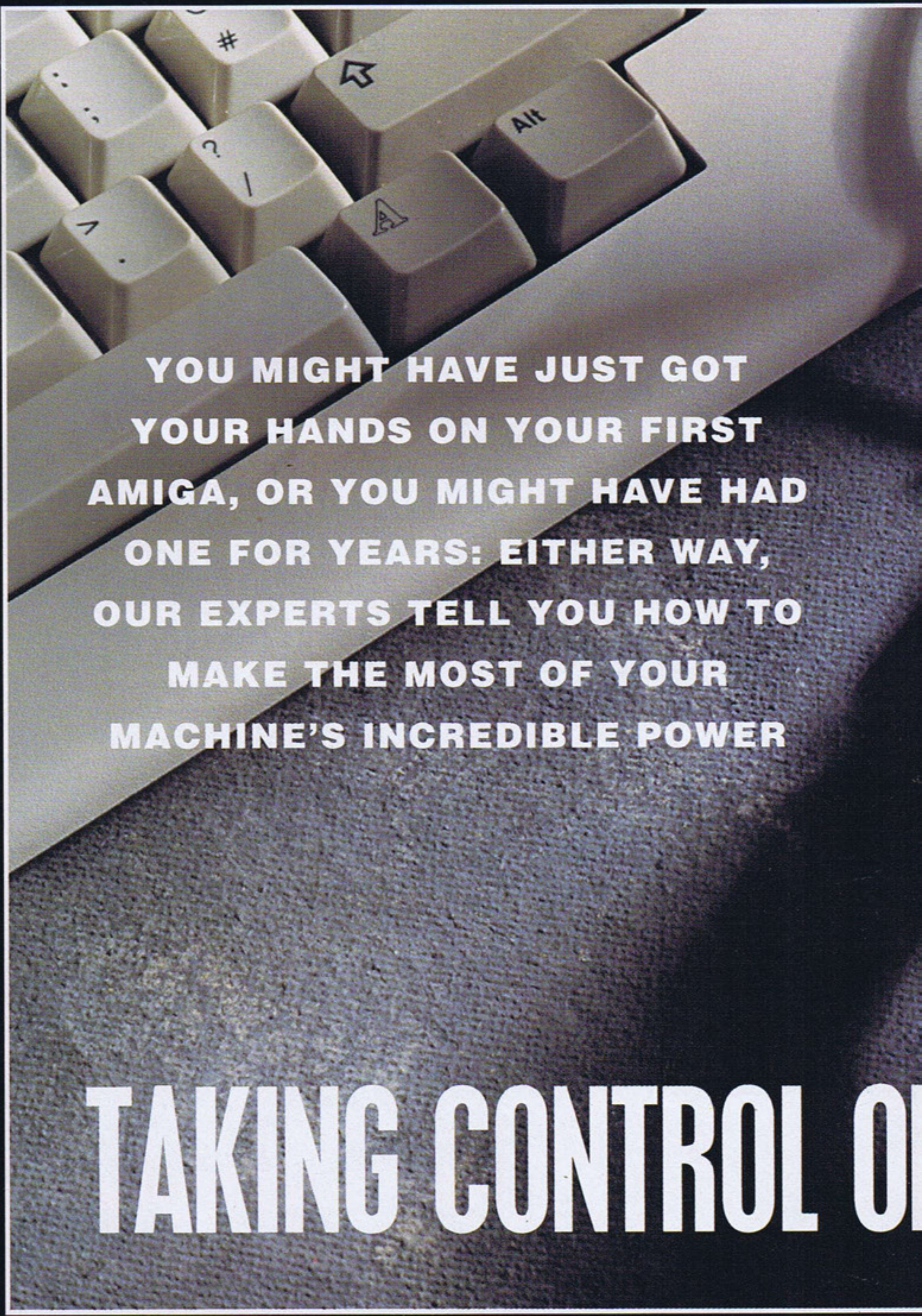
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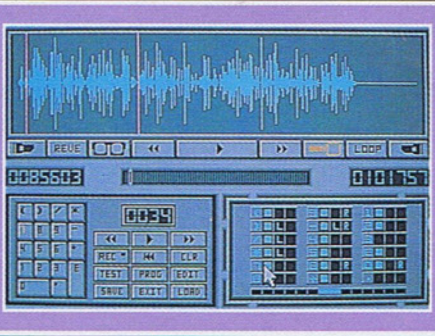
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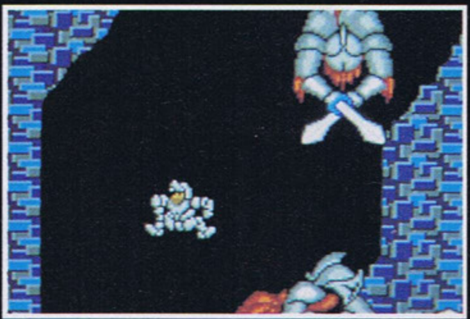
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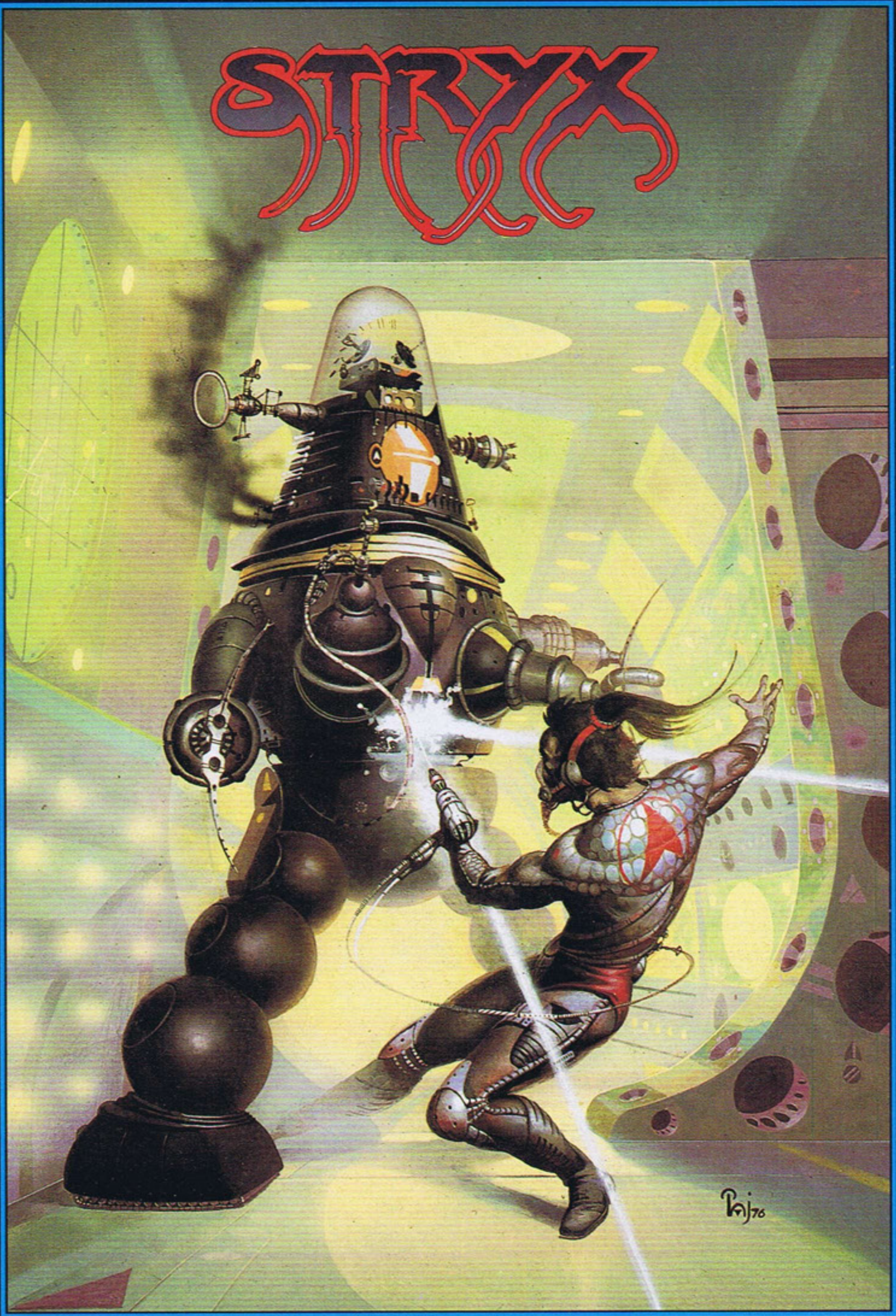
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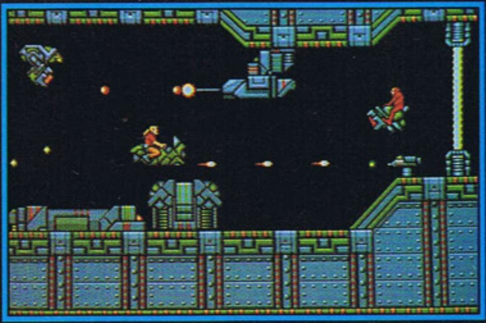
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- ★ ***Designed with small fully animated characters from Garvan Corbett, the artist who brought you the classic hit Barbarian***
- ★ ***Multi-directional free format weapon usage***
- ★ ***Large playfield for even more action.***

You're really up against it this time. Those revolting robots have finally upped and turned their horribly powerful weapons on their kind human masters.
Someone's got to stop it before it all gets out of hand. I mean, you just can't have bloodthirsty Cyborg assassins roaming the streets of Dome City and expect the citizens to put up with it. Who on earth is going to sort out the mess? You guessed – you get the job.

Fortunately, you are just a little bit on the special side. You are Stryx, the product of Project Alpha Secure, the meanest fighting, smartest thinking machine ever invented. Half-man, half-robot, you are the business, the only one who can stop those wicked Cyborgs.

You'll have to work hard, though, blasting hordes of the revolting creatures (such a sad waste of scrap metal) and rescuing the keys to the Lifeforce.

So, Stryx, you'd better get your jet pack on for some high level robot stomping through the immensely complex underground world of the Dome cities. It's a tough assignment, and time is running out.

AMIGA/ATARI ST £19.95

Screen Shots from the Atari ST Version

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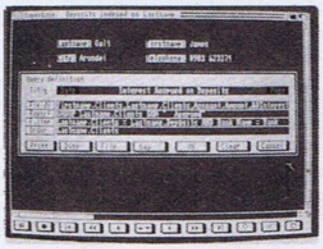
A timely reminder, for anyone whose New Year resolution was to be more organised, about Precision Software's range of databases and a spreadsheet. They have three databases – *Superbase Personal, SP 2* and *Superbase Professional Version 3* – while the spreadsheet is called *Superplan.*

Superbase Personal is the entry-level database costing £59.95, or you could pick it up with the Class of the 90s bundle from Commodore when you buy an A500. Its facilities include sorting and searching on any field, up to 999 key fields, VCR-style control panel, view data by entry, review or comparison, define and print multi-file reports, and include images and text as external files within the database for cataloguing.

Version 2 is an enhancement of the original program and is priced at £99.95. Amongst the additions to it are a text editor for document creation, better data handling including batch for quicker data entry, a mail-merge option and even built-in comms software for easy data transfer.

The *Professional Version 3* is the top of the range, weighing in at £249.95. It comes with its own programming language of over 250 commands and features like arrays, looping constructs and branching. Using this you can create custom programs and applications including defining your own menus. There's a report generator and a forms editor that allows you to produce multi- file applications without any programming. Automatic transaction processing lets you reproduce standard business forms and the comms facilities are programmable.

If it's not your data but your finances that need organising then Precision have *Superplan,* costing £99.95. It can work with *Superbase* or on its own and has file compatibility with *Lotus 1-2-3* and *dBase* files. It can print wall planning charts, Gantt charts, do critical path analysis, display data graphically, do sideways printing and produce colour output to a range of printers and plotters. Precision Software can be contacted on 01 330 7166 for more details.





PACKED SHOPPER SHOW

The Computer Shopper Show at Alexandra Palace at the end of November attracted a massive 26,658 people over three days. On several occasions the doors had to be closed and the organisers even had to put out appeals on Capital Radio and LBC for people not to come to the show.

The success of the show is probably little comfort to those that had to be turned away on the Sunday, but news of next years show may be. It is being switched to the Wembley Conference Centre on December 7th to 9th and the organisers are looking into extending the hours and possibly the number of days the show is on to take the capacity to 50,000 visitors.



SHOPPER COMPETITION
The eagle-eyed winner of the Shopper Show competition in our November issue was Geoff Bell from Chatham in Kent. He was one of many who managed to track down the lowest prices in the issue for three items – 10 blank 3.5" disks for £6, a 1084 monitor for £199 and an A1010 disk drive for £79.95. As you can see Geoff got plenty of goodies in his trolley and we hope he enjoyed the show too.

S.T.U.N. RUNNER

Coming in 1990 from Domark will be their conversion of the Atari coin-op that's taking the arcades by storm at the moment. This is hardly surprising because Domark recently picked up the rights to convert all of Atari's coin-ops for the next three years. In *S.T.U.N. Runner,* the player has to fly a super fast spaceship through a series of twisting tunnels - it's exhilarating stuff and not for the weak of stomach!

HI-FI LINK-UP

If you want to get the best sound out of an Amiga you need to hook it up to a hi-fi and Sphinx Software have a two-metre-long interface lead that will do just that. It costs £2.99 and you can find out more from Sphinx at Erw Fynydd, Carmel, Llanelli, Dyfed SA14 7SG.

200,000 AMIGAS



Commodore has just sold its 200,000th Amiga 500 in the UK. This staggering event took place in Woking, near Commodore's UK base, where Dean and Olivia Dibsdall, the lucky buyers, were presented with the Class of the 90s education bundle to mark the occasion. The continuing success of the Amiga in sales terms is good news for us all: it's the fastest growing 16-bit computer with an ever increasing list and variety of software and peripherals for it. Here's to another 200,000.

ACCELERATING MIDGET

Anyone who has tried doing complicated ray-tracing, 3D animation or computer aided design on the Amiga will know that the processing time can be extremely lengthy. One solution to this is an accelerator board like the new Mega-Midget Racer from Computer System Associates that works with both the A500 and A2000.

The Mega-Midget Racer uses a Motorola 68030 chip as opposed to the 68000 that the Amiga has as standard. The new chip allows the machine to run at 20, 25 or 33 MHz or any speed in between, and with the addition of an optional 68881 or 68882 maths co- processor it can get up to 40 MHz. The board also has a slot for the original 68000 and makes it software selectable so you can switch between the two.

There is also an optional 512K, 32-bit SRAM module into which the Amiga ROM kernel can be copied to allow faster screen refreshes, page flipping, scrolling and image processing. Finally a full 32-bit expansion bus enables the use of high speed memory and I/O devices in 8, 16 and 32-bit configurations.

The Mega-Midget Racer costs £649.95 with a 20MHz 68030 installed and is distributed in Europe by Advanced Technology Holdings, who can give you more information on 0923 817549.



FULL MEG DEMO

Memory Expansion Systems have come up with a novel giveaway for their 1/2 Meg expansion board: it's a 1 Meg demo written by Eldritch the Cat. The demo has the usual collection of scrolling text, way out graphics and driving soundtrack. There is actually three Meg of graphics and seven minutes of music. There are two demos available and if you don't want to buy the expansion board, you can get a demo on its own for £2.50. Contact Memory Expansion Systems on 051 236 0480.

DOMARK GET INCENTIVE

Combine the innovative programming of Incentive with the masterly marketing of Domark and what do you get? A game called *Castle Master* that uses 3D solid polygons to create an action adventure.

Incentive are best known for their 'Freescape' programming system that created the 'real' 3D environments of the games *Driller, Dark Side* and *Total Eclipse*. *Castle Master* sounds like an extension of that system to create a 16th century castle where there is a princess to be rescued and lots of evil spirits to cast out. Incentive's founder Ian Andrew said of the 3D graphics technique "It's an ideal medium for this type of scenario as it gives you a real feeling of actually 'being there'".

Domark are headed by the unforgettable Mark Strachan and Dominic Wheatley, famed for their wacky PR photographs and keeping the rest of the software industry entertained... oh, and they produce nice games too. Mark Strachan said of the deal with Incentive for *Castle Master* "It's completely brilliant news, I've always respected Ian's innovation in producing original product and I'm delighted to join forces with his company. Just wait and see the results! Hurray!" Which is quite restrained for Mark. The game is due in April and we can't wait for a PR stunt to launch it: how about it guys?

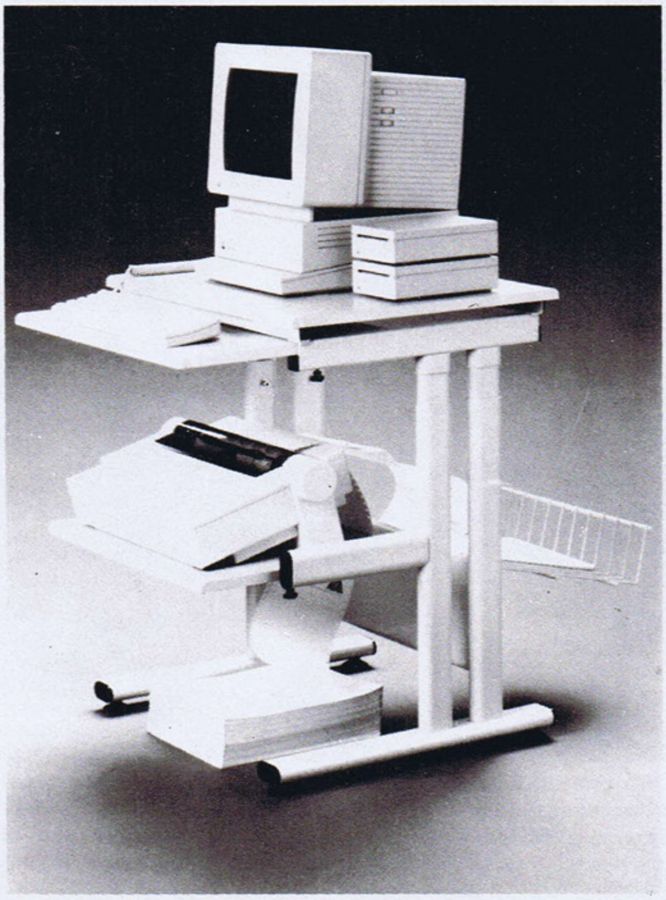


Mark Strachan, Andy Tait, Ian Andrew and Dominic Wheatley after signing the Castle Master deal.

ON THE SHELF

Every Amiga needs a place to live and MIV Progress have some furniture that could be a good spot for one. There are terminal and printer tables available at £129 each or £199 for a combined unit.

The units are made from tubular frames with lockable sliding shelves, adjustable legs and interchangeable castors and feet. The terminal table is 60cm wide and 50cm deep with a 55cmx40cm keyboard shelf. The printer shelf is 50cmx40cm with a fold-away catch basket at the back. The units are available from Action Computer Supplies on 0800 333333.



PRODATA UPGRADE

Arnor are releasing an improved version of their database, *Prodata*. Version 1.1 will be sent as a free upgrade to owners of 1.0 and will cost £79.95 in the shops.

The program provides data compatibility between the Amiga, Atari ST and PC compatibles. In addition to record filtering, password protection, macros, foreign language compatibility and file management, the following enhancements have been made: multiple line headers and footers, variable height layouts, global totalling of data, use of mouse to speed up layout editing, string search, scrolling of long layouts in display mode, up to 10 indexes, faster filtering, sub-database and optimised use of memory for using longer records on small memory machines. Full details from Arnor on 0733 68909.



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X-OUT
From the farthest reaches of outer space, they came to inhabit the depths of our oceans. From their savage assaults on a defenceless human race, grew a planet's last desperate crusade – project Deep Star, the ultimate underwater war machine. Early encounters proved catastrophically ineffective, however a few kept faith, all the time improving Deep Star, the greatest collection of man's technical wizardry, committed to the hands of a lone gladiator for one final attempt at halting the inevitable – the frantic death throes of a civilisation sinking into darkness.
That gladiator's battle cry ... take no prisoners, give no quarter, make no compromise.
Screen shots from Amiga version.
● Strategic underwater action. ● Over 50 simultaneous 'on screen' objects. ● 48 colour graphics. ● 50 pics per second scrolling. ● 8 levels each 160 screens. ● 40 different aliens. ● Multi graphics styles incl. lava, fire, crystal. ● "Buy and sell" over 25 multi functional extra weapons. ● Free style configuring of weapons and satellites.

INTERFACE FIXER

Finding out what is wrong with an interface lead can be a thorny problem – one that is solved for V24/RS-232 leads by the Interfaker. It costs £145 and has facilities for line monitoring, breakout and cross-patching. It's made by Modular Technology and is available from Action Computer Supplies on 0800 333333.





OPTICAL DRIVE IS NO ILLUSION

Direct Digital Distribution have come up with an extraordinary new piece of hardware, an erasable optical disk drive. The drive works at the speed of a hard drive and can store 650Mb. There is of course a drawback: it costs £4,900 and each compact disk it uses costs £375.

However, as DDD point out the cost per megabyte compares very favourably with hard disks. For example the cost per megabyte for the optical drive plus one CD cartridge is £8.16, while for a 40 meg hard disk costing £499 it is £12.47. Throw in another nine CDs and the cost per megabyte drops to under £1.50: even though the whole lot would cost about £8,000. If you've got that sort of money and have a few hundred or thousand meg of data to cope with then contact Direct Digital Distribution on 0708 754704.

SCANNER COMES IN HANDY

There's some brand new software from ASDG that works with Sharp's JX-100 Handy Colour Scanner to produce colour scans on the Amiga using all 4096 colours. *ScanLab100* is the latest of ASDG's scanning software, other programs are available for the rest of Sharp's scanners.

The scanners are aimed mostly at the desktop publishing area and can provide very high quality images for use in that field. *ScanLab100* has fully variable digital reduction, allowing correction of screen distortions, performance of special effects and conversion of image resolutions. It can also process 24-bit image files from ASDG's *Professional ScanLab* colour pre-press software.

There is a new high-res display called A-RES that gives a screen resolution of 768x680 on PAL monitors and 768x480 on NTSC with all 4096 colours at once. The software supports all current Amiga video modes including low-res, hi-res, interlaced and non- interlaced – all of which can be in overscan mode as well. The list of features continues impressively to include colour balancing, gamma correction, image cropping and image rotation. It even has six dithering modes allowing the display of 262,144 apparent colours.

The JX-100 scanner can scan areas approximately 4x6 inches at resolutions of up to 200DPI (dots per inch), making images of up to 1280x800 pixels. It can also perform black and white, 3-bit colour, 6-bit grey scale and 18-bit colour scanning.

ScanLab100 and the JX-100 will work with all Amiga models and are available together from ASDG for £695. For more information on these and ASDG's other scanning software and hardware contact them on 0923 818079 or in the US on 0101 608 273 6585.

COMMODORE ENVI

Commodore are to present a new award at the Entertainment Software Industry's awards dinner. It's for Enterprise with Vision (hence the abbreviation ENVI) and will be awarded to the company that has, in Commodore's opinion, designed the best software to take advantage of the Amiga's facilities. £1000 will go to the Royal Variety Club, the charity benefiting from this years dinner, and another £1000 to the programmer or team responsible for the software. We will report on who received this and the other awards in the next issue.

NEW MARKETING TEAM

Commodore has set up an international marketing department to support its subsidiaries throughout Europe. It's composed of high-level executives, but the plans and effects of the new set-up have yet to be seen.

PRINT ON THE MOVE



Always on the move? Need a printout while you're away from the office? Maybe you need the Personal 80 portable printer. It's a thermal printer with 80 column width, 80 cps (characters per second) and weighs under 1.5kg (3lb).

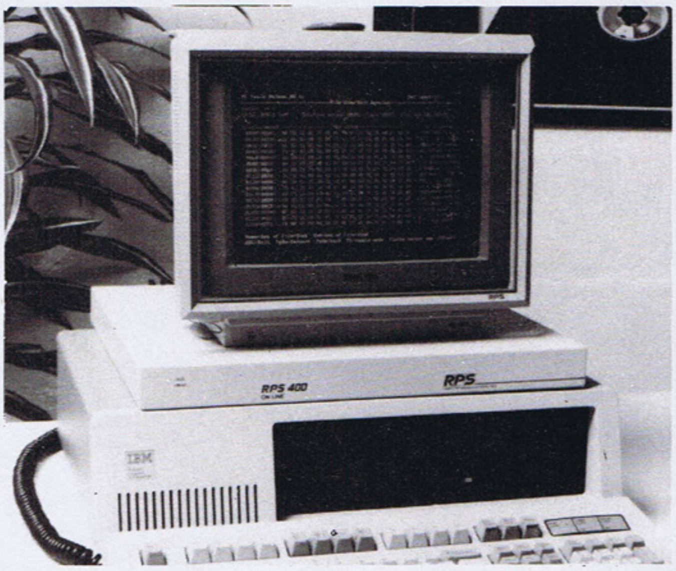
At £182.85 you can get a version that runs off batteries, has a charger and a car cigarette lighter adaptor. For £113.85 you can get the mains only version. The most helpful description of its size is that it is about the size of a 1lb box of Milk Tray, but presumably not as tasty to eat. Further information from Applied Systems Developments on 0724 280222.

SIDEWINDER STRIKES

Sidewinder is a new hard disk from Condor Computer Limited that fits neatly onto the end of the Amiga 500. The drive also has the ability to take 2 Meg and 4 Meg RAM expansion cards, and has a through connector which will be able to take an expansion chassis containing extra disk drives and slots for A2000 cards as well as PC bridgeboards and cards.

It's a SCSI drive that supports both 1.2 and the new Fast File System 1.3 Roms, and autoboots directly to FFS under system 1.3. The customisable driver supports over 15 SCSI drives and it has no problems with video overscan because it is non DMA.

The 48 Meg hard disk costs £499, while the 2 and 4 Meg Ram expansions cost £399 and £599 respectively. For more details contact Condor Computer on 0734 810066.

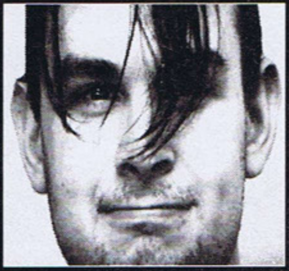


SLIMLINE POWER

Two new uninterruptable power supplies are available that can slip neatly underneath a monitor. They come in 400VA and 800VA units costing £550 and £950 respectively and provide a clean source of power and five minutes' power in the event of a complete power failure. They are both available from Action Computer Supplies on 0800 333333.

A NEW NAME

There's a new face on the *Amiga Format* team and it belongs to Maff Evans who has joined us as a Staff Writer. Previously Maff has worked on our sister magazine *New Computer Express* and before that on *Zzap*. He is a dedicated Amiga fan and experienced gamesplayer and we would all like to welcome him to the team.

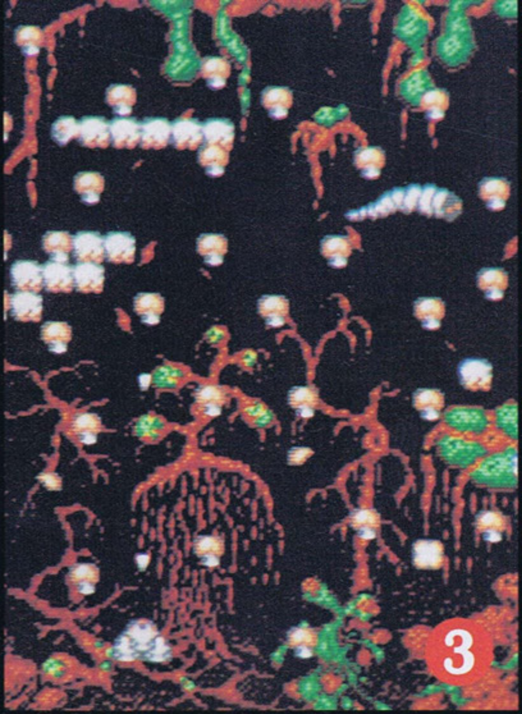


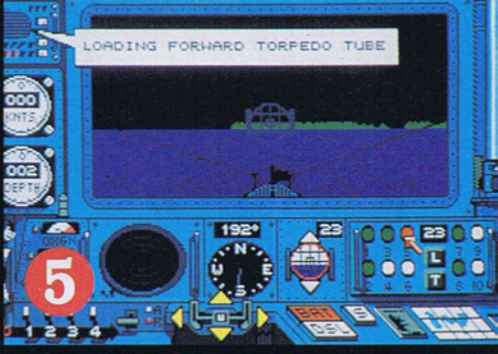
CHANGE OF ADDRESS

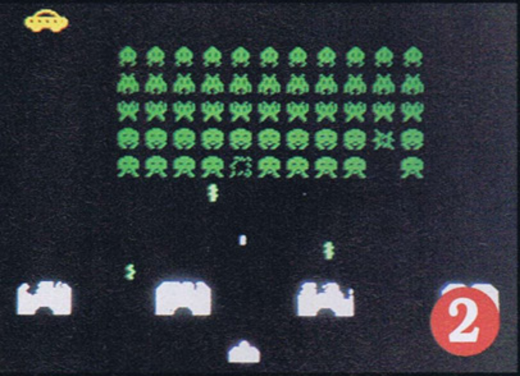
Just in case you missed it last issue we have moved to a new address. All editorial and advertising correspondence should be sent to: Beauford Court, 30 Monmouth Street, Bath BA1 2AP. Our new phone number is 0225 442244 and the Fax number is 0225 446019.



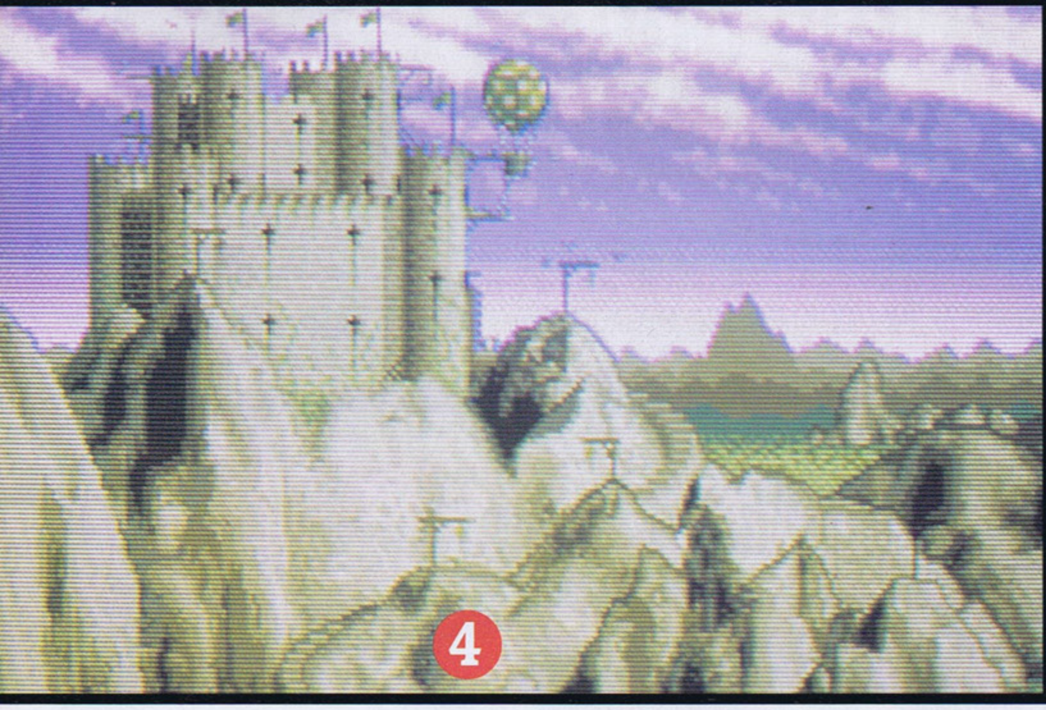














COMING ATTRACTIONS

A brand new decade and some brand new games to feast your eyes upon. Move into 1990 with news of the New Year's best releases.

INFOGRAMES

Combining arcade action with adventuring will be *Eagle's Rider* (1). Forward in the year 7014, the player assumes the persona of Steve Jordan, leader of the Earth's defence forces, and has to fly around space and finally find and destroy the mother planet of the Cyborg race. Why? Well, these alien nasties have conquered most of the Galaxy and are setting about laying their mitts on Earth herself.

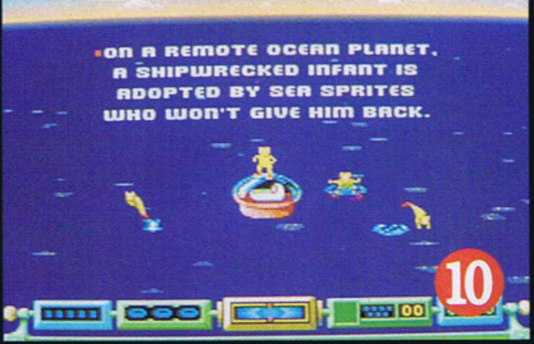
IMPRESSIONS

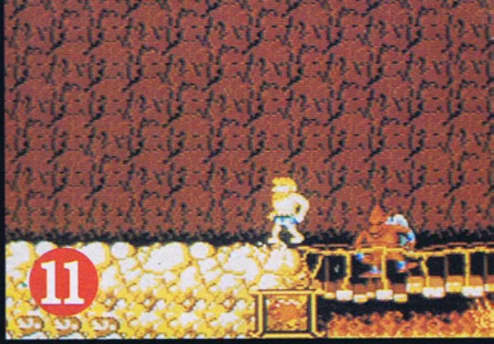
For all those who reckon that games just haven't improved since the early Eighties comes *Renaissance*. With this compilation of four old-time classics, games players will once more be able to defend the Earth against the original baddies in *Invaders* (2), or smash the asteroids to dust in *Rockstorm*, defeat more aliens in *Draxians* before finally killing off the giant centipedes in *Megapede* (3). We're all on the edge of our seats here in *Amiga Format*, waiting for this one to land on the mat!

PALACE

Flushed with the success of *Future Wars* (admittedly from Delphine) and hoping to go even further with *Dragon's Breath* (4) are Palace. This game's essentially in the strategy mould with arcade and trading elements incorporated. Up to three people can play the game which has a heavy fantasy role-playing feel and which also promises to be one of those games that will take a while to get



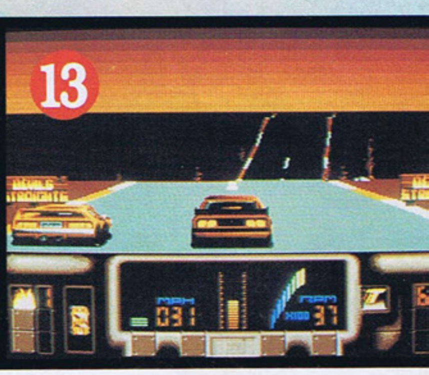












into, but will have you playing for immense periods of time.

MASTERTRONIC

The budget kings have loads of planned releases on their 16 Blitz label coming up including *Hunter Killer* (5), a sim based on American WWII submarines that will send the player on a variety of missions ranging from the glamorous Search and Destroy sorties to nerve-tingling escort duties. If you're a political animal then perhaps *Conflict* is more your thing. Set in 1997, the game gives the player the chance to slip into the caftan of the ruler of a middle eastern country, vying with your neighbours for power and prestige.

Grimblood (6) on the other hand is a Mike Singleton game where the player, as the young Earl Maximus, must find the murderer who's lurking deep within castle Grimblood. Fail and it looks like curtains for the young lad (aah, poor lamb!)

DOMARK

Winners of this month's 'Cor! look what we've got' award are the Domark Twits, whose next batch of releases look as if they're going to be just as good as the last batch.

Heading up the assault on your wallet is *Cyberball* (7), a futuristic look at American Football played between teams of massive, powerful and very violent robots. As the coach, you'll have over 100 offensive and defensive plays to call, as well as calling time outs and replacing damaged robots.

More robots abound in *Escape from the Planet of the Robot Monsters* (8) (I'm sure I saw the film in the Fifties!) On Planet X, a bunch of nasty Reptilons have enslaved the human population and are forcing them to create an evil robot army which will then be used to destroy Earth. The only way to stop them is by taking control of Jake and Duke and fighting your way to the captive Professor Sarah Bellum (Sarah Bellum, Cerebellum, geddit? Oh, just carry on).

The pace doesn't slow down with *Wings of Fury* (9), a shoot-em-up set in 1944 that has the player giving air support for a heavily-damaged aircraft carrier. *Typhoon Thompson* (10) has the player skimming over the ocean on the alien world of Aguar in a one-man jet-sled trying to rescue a baby being held captive by a bunch of sea sprites.

ELITE

Strange as it may seem, Elite are about to release *Ghosts 'n' Goblins* (11) the sequel to which is reviewed in this issue. The knight Arthur goes on his first adventure to rescue the princess and must battle heaps of nasties along the way. *Grand National* (12) on the other hand, is a game based on that famous race. *Overlander* (13), however, certainly is not. It's about high-speed driving and involves running missions through some seriously tough territory.

UBI SOFT

Things aren't too wonderful on the planet of *Unreal* (14). An evil chappie has run off with the placid Isolda and it'll be down to you – armed with little more than a magic sword – to get her back. Unfortunately, there will be a whole host of baddies to overcome first, so get those reflexes honed and those muscles toned (perhaps you should put some more clothes on too!) before taking this one on. ■

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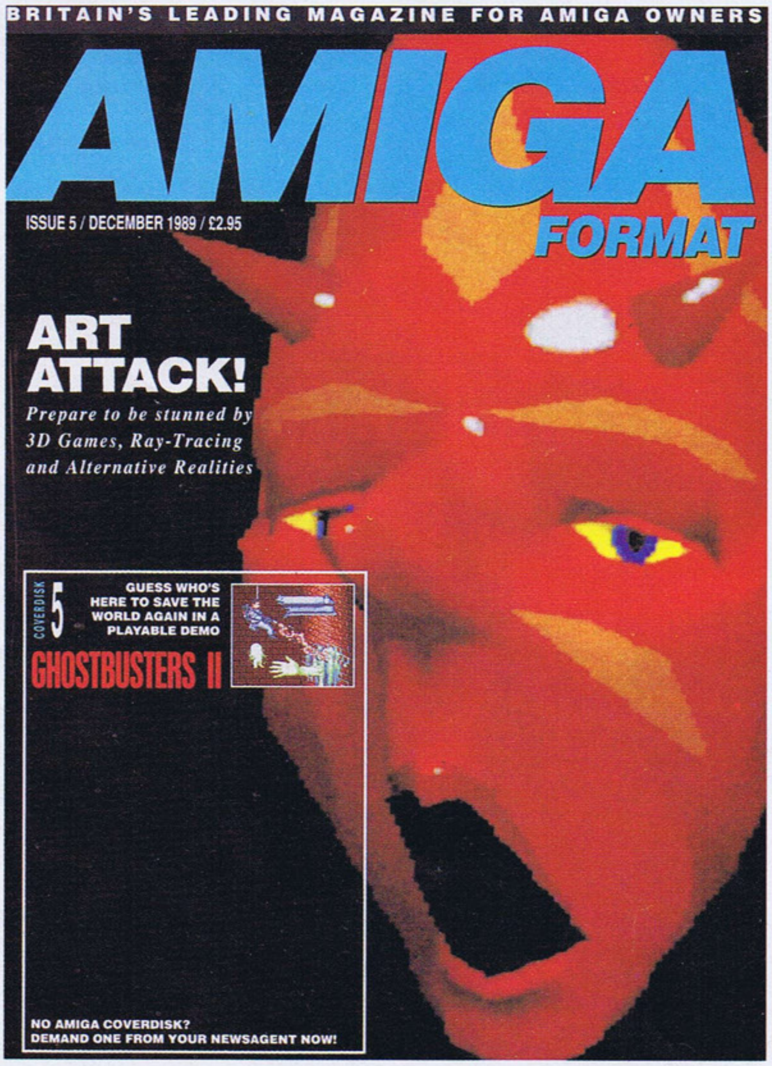
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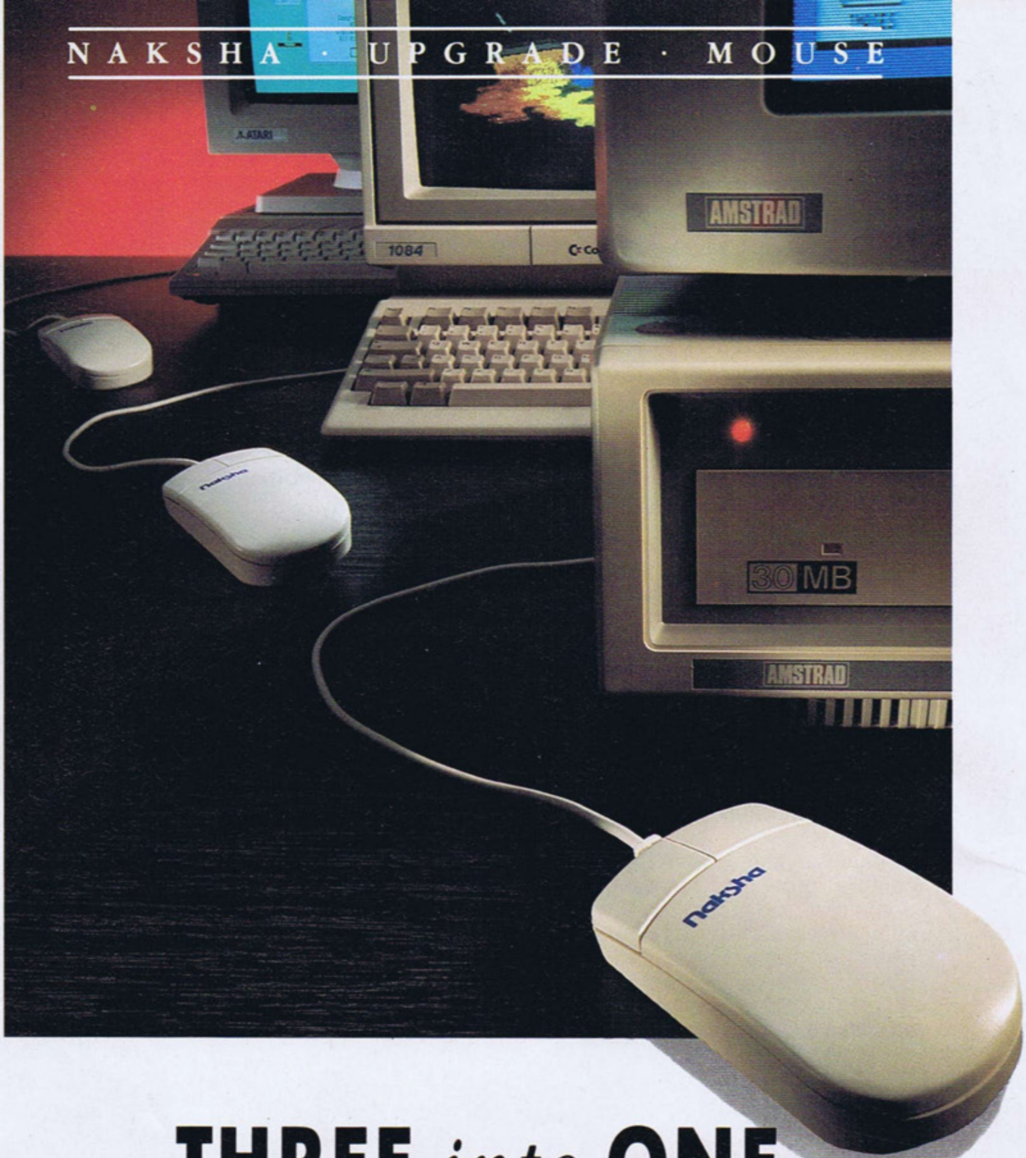
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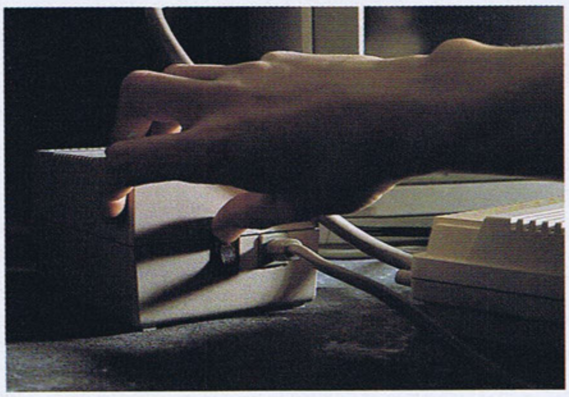
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Power ON!

The first step: but do you know exactly what you are doing before you even switch on your new machine?

TAKING CONTROL

Disk IN!



Second step: but just what happens when the disk goes in, and how does the Amiga start up the program?

OF YOUR AMIGA



Take CONTROL!

Finally you are in the hot seat: but how can you make the most of the powerful software that's around?

The starter's guide to all aspects of the Amiga.

So, you got your sticky mitts on an Amiga, did you? You may be one of those lucky people who have just received the machine of your dreams as a seasonal gift, or you may well have possessed one for a good while now. Either way, the aim of this article is to help you make the most of the remarkable powers of your Amiga.



If you are a new owner, then everything you need to get started from the moment you take the machine out of its box will be here. If you've owned an Amiga for several years, you've probably read in the magazines about a number of interesting uses for your machine – DTP, Video, Music – but have no idea where to start. Concentrating on the basic A500, we hope to help you open up the wonderful world of the Amiga.

DOs AND DON'Ts

1. DON'T plug anything in or unplug anything while the Amiga is switched on. That means joysticks, mice, disk drives, printers etc. You may be able to do it safely any number of times, but there is always the risk of having a static spark blow one of the chips.
2. DON'T worry about harming the Amiga by playing around with any software – software cannot damage hardware.
3. DO switch the power off at the power supply and leave it off for 10 seconds before booting up a new program. This prevents the spread of viruses that can damage disks.
4. DO write protect disks wherever possible because this too reduces the risk from viruses.
5. DON'T leave disks near to strong magnetic sources (monitors, TVs, speakers etc) as this may corrupt the disk.
6. DO back-up disks where possible in case the original gets corrupted.
7. DON'T turn the Amiga off or eject a disk while it is still being accessed, signified by the green light on the right of the keyboard on an A500 and by lights on the drive of the A2000 and external drives.



8. DO read Amiga Format every month.

POWER ON!

The Amiga power supply is, somewhat unusually, in a separate transformer block known bizarrely as the 'brick'. This is handy in some ways, because you can leave it on the floor under your worktop, but awkward as well, because the power switch is on it. Power up, and the first thing that will confront you is a white screen with a picture of a hand holding a disk. Fine, the Amiga's working so far!

First thing you'll realise, if you've not used an Amiga before, is that it will now do nothing at all until you put a disk in. All that has happened so far is that the basics of the operating system have been put into use, checking that all systems are working, providing an output to the monitor and preparing the disk drive to receive a disk. All this has been organised by a chip called Kickstart, whose job is to get the Amiga going.

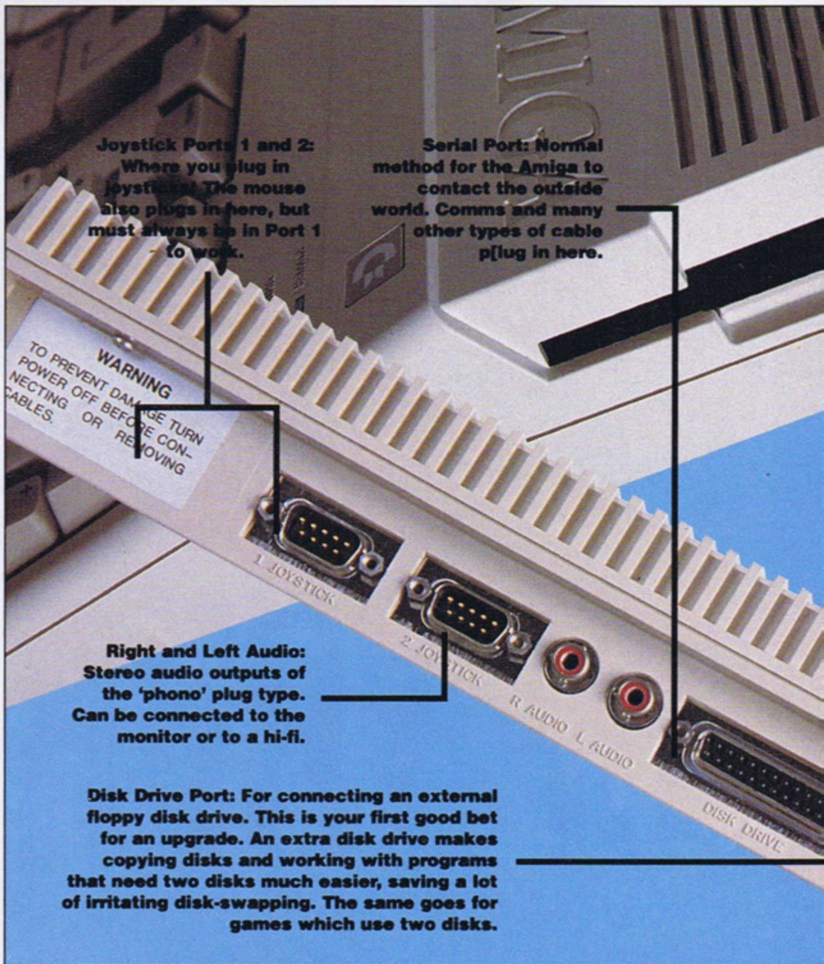
Since the Amiga was introduced, Kickstart has been updated to work with the latest versions of the operating system. Underneath the hand-holding-disk picture is a number: on all new machines, the number will be 1.3, the latest version of Kickstart. If you have an older machine, the number might be 1.2, in which case you can upgrade to the latest version by having a new Kickstart chip fitted. Advice on fitting your own new Kickstart chip appeared in Issue 3 of *Amiga Format.*

Now you are ready to put a disk in the disk drive. Be careful to put it in straight and level: a disk jammed in the drive can be very awkward to fish out!

DISK IN!

You have two choices, here: you will either insert a 'self-booting' disk or the Workbench disk. The process of loading a piece of software from disk into the machine is known as 'booting'. The program is loaded into the 512K of RAM (that's Random Access Memory, the program storage space) that the basic Amiga possesses.

Most games are known as self-booting because when you put the disk in they will load themselves. Supplied



WHERE TO GET HELP

1. If the machine breaks down while still under guarantee then return it to the dealer you bought it from: you did fill in the guarantee card. didn t you?
2. If software you have purchased is in any way defective despite your having followed all of the manufacturer s precautions. then return it to the manufacturer.
3. If something about the machine is troubling you and the manual has no explanation. consult your dealer. If you re still troubled. contact Commodore Technical Support on 0628 770088
4. For more informal helpand advice scour the small ads of the computer press for the address of your local Amiga User s Group – they re always willing to do a body a good turn.

on the game disk is something called a 'boot sector' or 'boot block' which starts the game loading and supplies all the bits of the operating system necessary to actually run the disk. The boot block is often where copy protection is hidden: if you can't copy the boot block, you can't load the game. It is also the part of the disk where viruses normally hide themselves.

Most serious software, by contrast, makes use of much more of the Amiga's operating system so the first step is to insert the Workbench disk on which much of the operating system is located. Workbench, like a game, will happily load itself. Remember to wait until the disk drive has stopped whirring away and the green 'drive being accessed' light has gone out before taking out the Workbench disk.

Having taken out your Workbench disk, you can then put the disk with your software on it into the drive. The disk will appear as an icon (a little picture) with its name underneath.

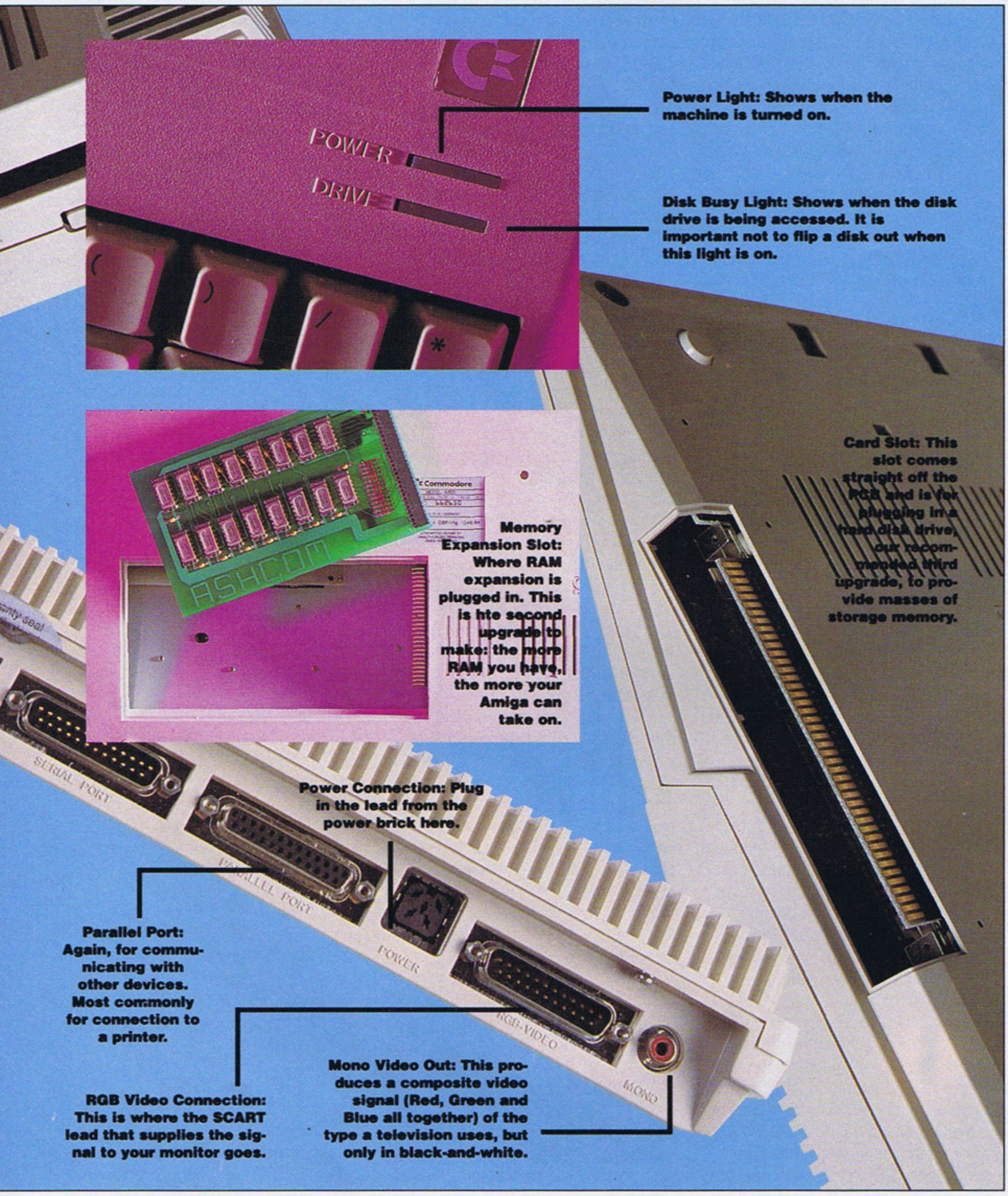
Generally, if you want to start using a new piece of self-booting software it's a good idea to switch the machine off, put your new disk in, wait about ten seconds for the RAM to clear out and the switch on again. If, however, you need to start up the same piece of software again you can simply leave the disk in and hold down the two [Amiga] keys and [Ctrl] at the same time. This will perform a 'warm reboot' or 'restart'.

TAKE CONTROL!

The Amiga will only accept digital, rather than analogue, joysticks to play your games with. Suppliers will tell you if the joystick you want is suitable for the Amiga. Easy enough for the gamesplayers: just get on with blasting some aliens!

Those finding their way round Workbench for the first time, however, have more of a task ahead. Though Workbench is vital to get to grips with, it can be a litte confusing because it was put together in a hurry and as a consequence is a little schizophrenic. That is, it has two different ways of operating.

The first is what is known as a WIMP system: Windows, Icons and ▶



VIRUSES

A virus is a program that hides itself on a disk or inside another program and copies itself to other disks. After a certain set of conditions is met, like copying itself 20 times or reaching a certain date, the virus then reveals itself by doing something like wiping the disk clean.

Not all viruses have a terminal effect – some are quite entertaining – but because of the danger they represent they should be avoided at all costs. They go by many different names and have many effects. There are also virus killers available through the public domain or commercially which can remove certain viruses off a disk. However, new ones keep being developed and the only safe way to avoid them is to follow the tips in the DOs and DON'Ts section.

PUBLIC DOMAIN SOFTWARE

There are two types of software that are available virtually free: shareware and software that is in the public domain (PD). Shareware can be freely copied and distributed but if you like the product and use it then a fee should be paid to the authors. This is very much a voluntary process, but important if the number of PD and shareware programs are to keep on increasing. By paying the contribution you also get updates of the software automatically. Public domain software can be freely copied, used and altered in any way you want.

PD programs cover a massive range of subjects from demos to databases, comms programs to games, spreadsheets to utilities. If you need a program there is probably a PD one that will do the job, although generally, of course, they are not the best. You'll be amazed at the immense number and variety of PD software.

You can obtain PD and shareware software from various PD libraries detailed in the PD Update pages or in adverts. They charge a duplicating fee, but are usually run on a non-profit basis. Some require you to provide your own disks for copying onto. To get full details on what software is available you can either keep referring to the PD Update pages or contact the PD libraries for full lists of the software they have.



CLI

So you've discovered the Shell icon on the Workbench disk. You double click on it... a small window appears containing a single text prompt. What do you do know?

The Shell environment is a more direct (and usually faster) way of carrying out disk and basic task maintenance. Most of what is possible can also be achieved from the Workbench, but using the CLI is favoured by those who require a faster way of working that provides more control over the machine. Like other command line based machines (such as the PC compatibles), AmigaDOS has a large collection of commands which are used to carry out individual operations: for example, there's a command to rename disks, a command to delete a file and so on. Anyway, here's a quick run down of a couple of the more important commands.

***DIR* – The DIR command displays a listing of the contents of a specified directory. For example, if you type DIR SYS: you'll get a listing of the contents of your boot disk (usually Workbench).**

***CD* – Allows you to travel between disks and directories. The command allows you to change your current location to any specified directory. For example, try typing CD SYS:DEVS/PRINTERS and (after pressing RETURN), view the contents of the directory by typing DIR.**

***DELETE* – No prizes for guessing what this command does. Simply removes a file (or directory) from a given disk.**

***COPY* – The COPY command is used to transfer a file or an entire directory from one location to another. Can be used to copy files between disks. Syntax is COPY <Source Filename> TO <Destination Filename>.**

***TYPE* – Displays the contents of a text file. Press the space bar to halt the display and backspace to restart. Type in TYPE S:StartUp-Sequence for a demo.**

▶ Pull-down Menus. The WIMP system is controlled by the mouse and is very simple and straightforward to use. We won't go into detail here but you'll pick up the general idea in no time: move the mouse pointer around the screen, double-click on icons to make thingd happen, or pull down a menu at the top of the screen by holding down a button and then release it to make other things happen. As soon as you're used to the mouse and the way windows, icons and menus work, you'll find it a pleasure to use because everything is represented visually on the screen.

The dark alter ego of Workbench, on the other hand, is the CLI: the Command Line interface. In your Workbench disk window you will see a small blue icon called 'CLI' or 'Shell'. Double-clicking on this opens up a command window into which you type CLI commands and press [Return] to make them happen. The trouble with this is you have to remember what the commands are, spell them correctly, and get all the words in the proper order. This can be a real pain in the bum. Don't despair, though: you will get used to using the commands you need most in no time. And some time in 1990 the release of Workbench 1.4 is expected, which will move one step closer to a proper easy-to-use WIMP system. Until then, make a start with our basic guide to the Workbench and CLI.

So now the Amiga is in your hands. Read on for the *Amiga Format* guide to good games, how to get started in DTP, Graphics, Video and Music, and heaps of other handy hints. Good luck, and enjoy!

UP AND RUNNING

DESKTOP PUBLISHING

Desktop Publishing is best defined in contrast to word-processing. With word processors all you are concerned about is the words, not what they look like when they are printed out: so the printer uses whatever font or typeface it has available, and the result is rather like a typewritten document. The basic aim of DTP, on the other hand, is to imitate proper type-setting as used in professional magazines like this one. The basic tenet of DTP, therefore, is WYSIWYG: what you see (on the screen) is what you get (printed out).

DTP packages allow you to set up whatever page size you want – A4, for example – and then lay out your text in a range of different typefaces (or fonts) and sizes wherever you want them to be. What you print out will then be exactly how you want it on the finished page.

Many DTP packages allow you to 'import' graphics: in other words, you can pull in scanned or digitised pictures, or graphics drawn with a paint package, and shove then wherever you want them on the page before printing it out. This is useful, but makes far greater demands on the quality of your printer than text alone does.

If you are producing simple posters, newsletters or fanzines, you may get much better results by printing out your 'typeset' text and then simply photocopying photographs, cutting them out and sticking them down: this is very like the old 'cut and paste' methods that all newspapers and magazines used until computers took over. You can do quite large 'print runs' on a photocopier and get remarkably good results this way. The slightly rough-and-ready look of this kind of design work is very trendy, too.

The graphic power of the Amiga makes it ideal even for professional DTP work and many organisations use it as a low-cost alternative to the Apple Macintosh. All you need is a DTP program and a printer. Many programs are available, at prices of £100 and up, while printers can be anything from a simple dot matrix at £150 to a hi-tech laser printer at several thousand pounds. Most people will be happy with a simple set-up, although a colour printer can improve things considerably. A more professional set-up will require an A2000, hard disk, laser printer, colour scanner, extra memory and an accelerator board.

However, even with an A500 and a dot matrix printer, impressive results can be obtained for producing press releases, newsletters, fanzines, etc. DTP can even be done using art packages, although most are not equipped with sophisticated text handling facilities. DPaint II, for example, can handle text perfectly well to produce posters and the like.

For more information on getting started in DTP see Issue 2 of *Amiga Format* where we carried a comparative review of the cheaper DTP programs, or Issue 3 where the more expensive programs that can handle colour were looked at.

SOUND AND MUSIC

The Amiga has a very powerful built-in sound chip that can produce impressive stereo music and sound effects. When it is hooked up to an amplifier and speakers the sound can be quite outstanding. There are three main aspects to Amiga sound and music.

Your first encounter with the soundchip (called, incidentally, Paula) is likely to be through games music. This is a fine example of the first kind of music-making which is known as 'internal chip programming' because it consists simply of using the Amiga's internal soundchip to produce music. There are plenty of programs available to let you write music using only your Amiga: *Music Studio* from Activision or *Instant Music* from Electronic Arts are good starters.



Data Liberation's DTP package *PenPal*.

Another example of using the Amiga's soundchip on its own is the speech synthesiser on your Workbench 1.3 Extras disk. With this installed, you can use the command 'say' from the CLI to make the Amiga speak whatever you type in.

The second musical capacity involves buying a MIDI interface, a little piece of hardware that costs around £30 and plugs into the back of the Amiga. With one of these, your Amiga can talk 'MIDI', a universal language for all electronic instruments, and so can control one or more synthesisers. There are then two kinds of software that can come in handy: 'patch editors', with which you can mess about with the sounds your synth produces, and 'sequencers', which allow you to write whole tunes (tunes are just 'sequences' of notes, you see) and play them back through the synth. Sequencing is responsible for the sound of much modern pop music: particularly of the Stock, Aitken and Waterman kind.

The third kind of sound manipulation is sampling. Samplers are usually a combination of a piece of hardware that plugs in to the Amiga and some software to control it. Using any sound source, such as a cassette player, a CD, a video recorder or a microphone you play sound into the sampler: the sampler then slices the sound up into digital information and stores it as a file. This sample can then be played back through the Amiga's soundchip. Bits of samples can be incorporated into music, the technique that has made Acid House such a success.

A whole sub-culture has sprung up around the Amiga's power to manipulate sound and graphics, in the form of demos. These combine the best music and graphic effects to make entertaining rolling demos that are circulated on the PD scene.

VIDEO

The Amiga is a very talented machine at combining video images with its startlingly good computer graphics. In order to do this there are two ▶

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BASIC WORKBENCH OPERATIONS

Most of the Workbench operations are hidden away with the Workbench menus. To access these mysterious gems, click the right mouse button and the menu strip will appear containing three menus – Workbench, Disk and Special.

The Workbench menu contains six functions: Open, Close, Duplicate, Rename, Info and discard. Most interesting among these is the Duplicate option, which is used to copy disks, Info, which displays all sorts of useful information on disks, files and directories.

The Disk menu contains just two functions – Empty Trash and Initialise. The Empty trash option is used to delete all files that have been placed in the trashcan on the currently active disk. Initialise is a rather grand way of saying 'Format', which is used to prepare a disk for use.

Finally, the Special menu contains five functions – Clean Up, Last Error, Redraw, Snapshot, Version. Most interesting among these is the Snapshot option, which is used to permanently fix the position of icons and windows on the Workbench screen.

LEGAL EAGLE

Make sure you stay on the right side of the law and don't get conned by remembering these points.

1. Copying and distributing commercial software, even if it's just one copy to a friend, is illegal. Some software is unprotected and allows you to make back-up copies but those are purely for personal use.

2. The only software that can be freely distributed is public domain or shareware: see the section on public domain for more on this.

3. If you want to copyright a program, all you have to do is put a copyright message in the code somewhere.However, in order to prove copyright in a court of law you will need more than that. The safest method is to leave a copy with a solicitor: that way you have proof of when you first created the program. Slightly easier is to post a copy of the program to yourself recorded delivery and leave it sealed. If in doubt, go with the solicitor.

4. Most serious software comes with a licensing agreement that means you can only run it on one machine. In other words, if you are in an office with several Amigas you can't make several back-ups of a word processor, database or whatever, but have to buy a copy for each machine you are using it on.

› crucial additional items required: a genlock and some titling software.

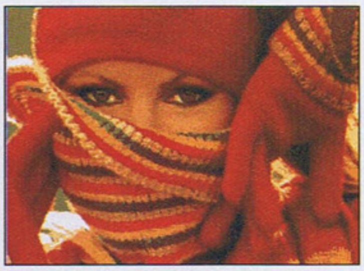
A genlock is a hardware device that enables the graphics to be overlaid onto video images. The software is a mix of standard art and DTP programs that allow the creation of complicated graphics and text. The software and genlock can be bought for as little as £100 each, but much more expensive and professional options are available.

The idea is to take a raw video – your family holidays, perhaps – and add intro sequences, flashy ccomputer graphics and titles to make it look like a professional TV program. You can also edit together video sources to have a number of different things running on-screen at the same time: great for home-made pop videos.

Even with a basic set up you can produce amazing videos and with top-of-the-range software and genlock the Amiga can produce broadcast quality graphics, and is already used by many companies doing video and television work. For more info on getting started in video watch out for the comparative review of basic software and genlocks, with tutorial, coming soon.

GRAPHICS

The most basic form of graphics software is the plain, simple paint package. These work simply by manipulating the 'bitmap', which is the graph in the Amiga's memory that maps out where every pixel is on the screen and what colour it is. The leader of the pack by a long way is *Deluxe Paint III*, with which you can not only paint and draw on screen, but also animate your pictures, moving them about the screen in much the same way as sprites in a game. Also in the straightforward paint category are *Photon*



NewTek's popular HAM painting system *Digipaint 3*.

Paint 2 and *DigiPaint 3*, both of which work with a weird Amiga feature called HAM to allow 4,096 colours on screen, which means you can achieve very natural non-computer-like tones.

Next step up are the CAD packages, which use vector graphics to produce line-drawings. Big advantage here is that they can be created as 3D images and rotated to view all sides, much like a professional technical designer's kit.

Top of the bunch are the ray-tracing packages, which use complex mathematical techniques to calculate real 3D images and work out the way light is reflected or absorbed by surfaces. These give incredibly realistic animations: you may have seen the silver spheres bouncing against a chess board image which has ecome almost a cliche of ray-tracing. Highly recommended is Sculpt-Animate 4D.

COMMS

First step here is to buy a modem, a piece of hardware that costs only a couple of tenners. One end plugs into your Amiga, the other end into a standard telephone socket. Then get some comms software: much good stuff can be found in the Public Domain libraries, particularly *Access!* which was also given away on the Coverdisk of *AF* Issue 3.

A program like *Access!* is also useful for transferring data from one machine to another, but its main purpose is to phone up Bulletin Boards. Many of these are just computers hooked up to a phone line, but the main ones are large profit-making organisations. Usually you are given a free-of-charge but restricted access untill you join. Most charge a fee to join the board, after which you can read news and information, chat to other board users and even copy programs and graphics onto your computer: all from the comfort of your own armchair! Everything is typed in via your Amiga: even the phone numbers, which the modem dials for you.

A good start to Comms would be to read the introductory feature on the subject in *AF* Issue 5.

THE LIGHTER SIDE

GAMES YOU MUST HAVE

Now you have the machine, whether you want it to be a business workhorse or an art tool, the time will come when you actually want to play a game. But with so many out there, how do you know which to go for? Simple, read the following guide!

SHOOT-EM-UP – Several to choose from, but for the familiar spaceship type, you could do a lot worse than *Denaris* from Rainbow Arts or *Xenon II* from Mirrorsoft.

ADVENTURE – Text adventures are always popular and a fine example of the genre is *Fish* from Rainbird. But even better and slightly more user friendly is *Journey* from Infocom.

ARCADE CONVERSION – Some excellent ones here, but most will be covered under other headings. *Strider* from US Gold is well worth a look at, as is *Ghouls 'n' Ghosts*, also from US Gold, or *New Zealand Story* from Ocean.

DRIVING SIMULATION – *Power Drift* from Activision is a cracking buggy-driving game, and *Chase HQ* ranks up with the top few. Both of those are arcade conversions, though, so if you're after an original driving sim, *Stunt Car Racer* from MicroProse reigns supreme.

FLIGHT SIMULATION – Tipped as the best of the bunch by an RAF pilot on a recent visit to the Amiga Format offices is Digital Integration's *F-16 Combat Pilot*.

MOTORBIKE SIMULATION – MicroProse's *RVF Honda* is a corker of a game, as is Activision's *Super Hang-On*.

COMBAT FLIGHT SIM – Digital Integration's game could easily qualify here, but for less realism and more action, go for Electronic Arts' *Interceptor*.

FOOTBALL SIMULATION – *Kick Off* from Anco is, without a shadow of a doubt, the top of the first division.



FILM CONVERSION – *Robocop* or *Batman The Movie*, both from Ocean, are the best to have appeared in some while.

ROLE-PLAYING GAME – *Bard's Tale III* from Electronic Arts is a goody, but if you've got a 1 Meg machine, *Dungeon Master* from Mirrorsoft is head and shoulders above the rest.

HELICOPTER SIMULATION – *Gunship* from MicroProse is the best yet to appear.

ARCADE ADVENTURE – Puzzle-solving games, usually joystick controlled. *Kult* from Infogrames is one of the best of this type.

SPACE GAMES – The epic is *Elite* from Firebird, combining shoot-em-up with trading skills – an all time classic.

WARGAMES – Top of the heavy duty league are *Waterloo* from Mirrorsoft and *Red Lightning* from US Gold, while *Laser Squad* from Blade is much more suited to the novice.

OTHERS – Games too unclassifiable but still worth a place in anyone's library include: *Sim City* from Infogrames, which is a highly enjoyable city building simulation; *Balance of Power* from Mindscape, which is a very involving study of global politics; *Populous* from Electronic Arts allows the player to adopt a deity's persona and cultivate his followers; *Nebulus* from Hewson is a simple but incredibly playable platform game; and *The Sentinel* from Firebird is an all-time classic that combines quick reactions with some very tactical thinking. Last, but by no means least, is *Virus* from Firebird which is a shoot-em-up needing precise control. ■

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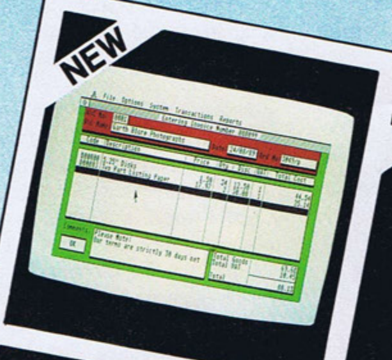
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POINT OF VIEW



Unless you have the resources to use expensive slide-making equipment, the one thing that limits the use of computers to make visual art is the output. However good your picture looks on the screen, whatever subtle effects you have used to disguise aliasing and pixelisation, the printout is very often something of a disappointment.

At home computer prices, printed output is still nowhere near catching up with the improvements in image quality on-screen brought about by cheap 16-bit computers and superb paint programs like *Deluxe Paint III* and *DigiPaint 3*.

Karl Torok, with the aid of John Downie, a software designer and lecturer, has managed to break out of this straight-jacket by using a plotter with which to print his images, instead of the usual dot-matrix or ink-jet printer.

Examine the images on these pages. Until about four years ago Karl was making drawings and paintings very similar to these by hand. Working from old photographs and postcards, the picture was built up on the canvas or paper with thousands of dots or dabs of a small range of colours, an incredibly laborious technique known in artistic terms as pointillism. Viewed from a normal distance, the dots merge and blend to create the whole range of hues, similar to the way a complete TV picture is built from only red, green and blue dots.

Each picture took weeks or months to produce, so experimenting with new colours or techniques was a slow process and development of new ideas was greatly inhibited. The discovery of a computer-generated pointillist technique has released Torok from



the physical constraints of the method and allowed him to experiment in a way otherwise undreamt of. Initially, he used a BBC and digitiser, combining two or three versions of the picture using several graphic modes to get depth and density into the image.

He now uses an Amiga which gives him greater flexibility and the ability to analyse and transform the image with the superior software available for the Amiga.

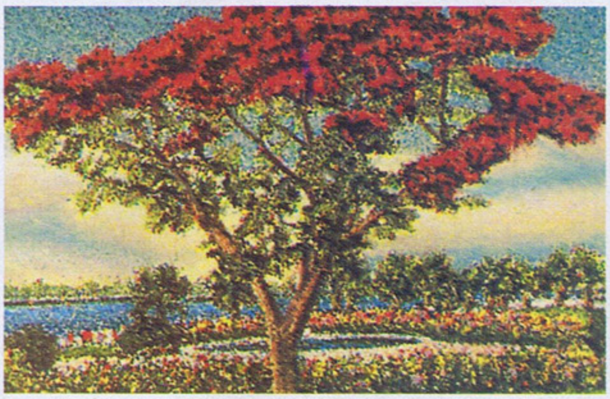
The process starts by selecting groups of pictures on a particular theme, sometimes in collaboration with one of a number of poets or on his own. The images might well be taken from his own photographs or, frequently, old postcards of unusual scenes around his home above Todmorden in the Pennines: or, as with some of those shown here, of curious images in Florida and California.

These images are then digitised, almost always with *DigiView*. The palette is then reduced to 8 or 32 colours, using *Transfer 24* (bundled with *DigiPaint3*). Some work may be carried out with *Deluxe Paint III*, *Deluxe PhotoLab* or *DigiPaint3* depending on the nature of the image.

The eight-colour picture is then transfered to John Downie's program (written in Basic and compiled on an Amiga). When first asked by Karl to write a plotter driver to produce a dotted image, John realised that it would be possible but surely out of the question since it would take hours to dump a single screen. Karl, however was delighted at the prospect of such relatiively rapid work.

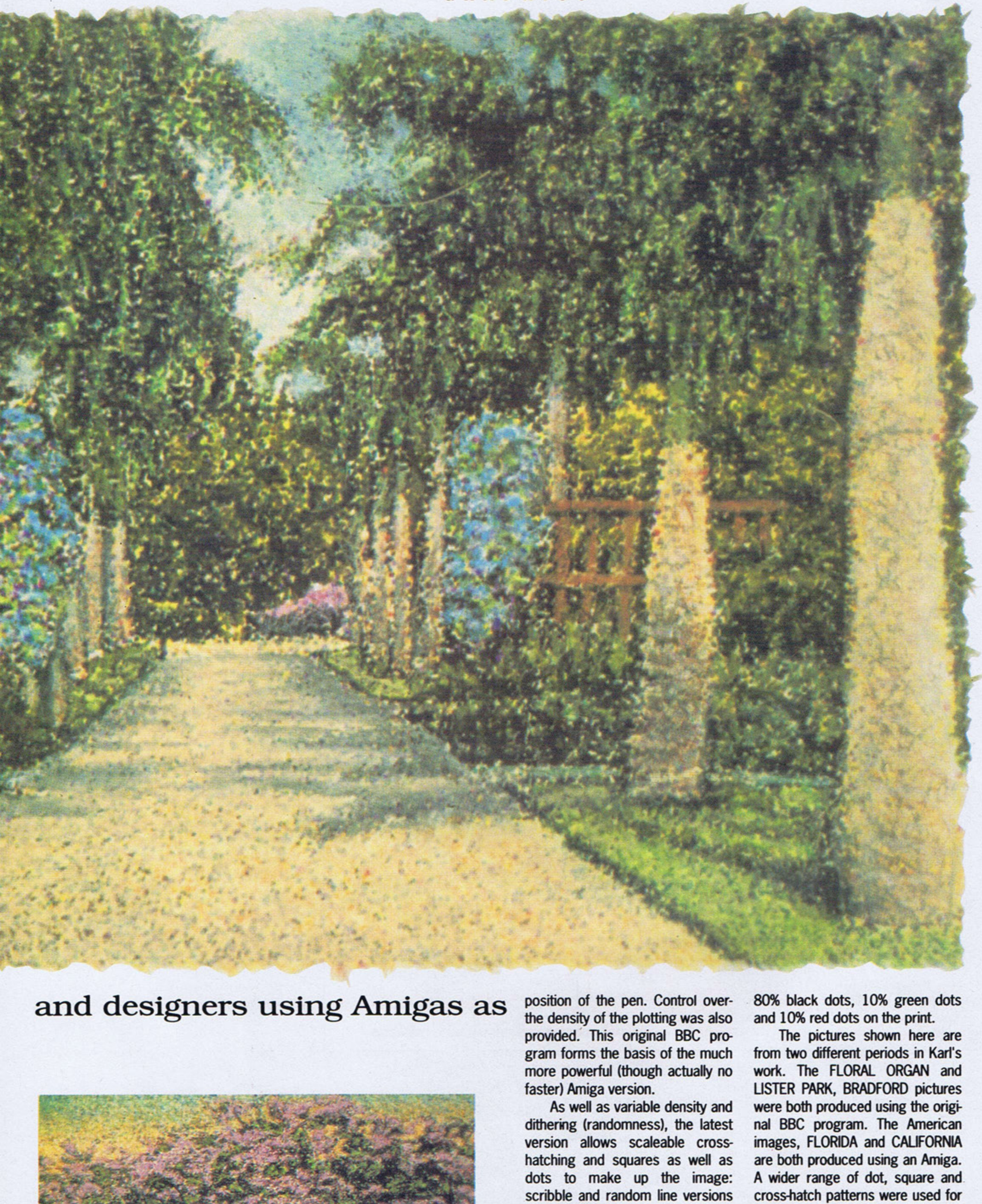
To avoid the uniformity and unwanted structure that appears while working from the screen, an early addition to the basic program was to use small, random but controllable variations in the

As the first in an occasional series featuring artists, animators working tools, **BRIAN LARKMAN** views the images of Karl Torok









and designers using Amigas as



position of the pen. Control over the density of the plotting was also provided. This original BBC program forms the basis of the much more powerful (though actually no faster) Amiga version.

As well as variable density and dithering (randomness), the latest version allows scaleable cross-hatching and squares as well as dots to make up the image: scribble and random line versions are on the way.

The colour palette of the original image is linked to the pens used so that each original colour can be simulated in the final image by different proportions of each pen colour. For example, an area filled with a particular green on the palette might be made up of 80% black dots, 10% green dots and 10% red dots on the print.

The pictures shown here are from two different periods in Karl's work. The FLORAL ORGAN and LISTER PARK, BRADFORD pictures were both produced using the original BBC program. The American images, FLORIDA and CALIFORNIA are both produced using an Amiga. A wider range of dot, square and cross-hatch patterns were used for these later pictures resulting in a clearer and brighter picture.

To some extent the recent images have been overworked with pastels which blurs their underlying 'dotted' nature, but in any case it is hard to believe that any of these fine works of art have been printed out by a computer. ■

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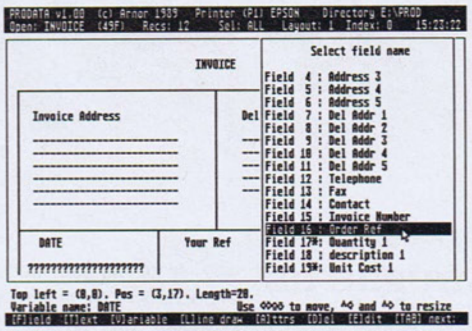
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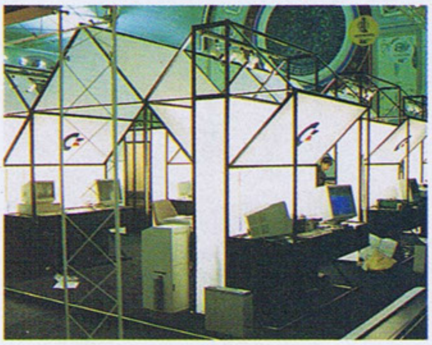
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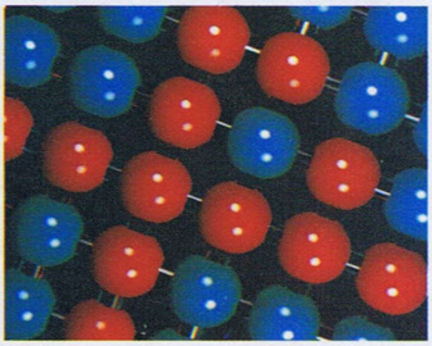
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(Alexandra Palace 7-9 November)

COMPUTER GRAPHICS 89

It is a mark of the Amiga's growing stature in the professional computer graphics world that the Commodore stand at the prestigious annual CG shows seems to grow larger year by year. CG89, in its splendid new setting within the vast temple of Alexandra Palace, was no exception. Commodore's 'booths' covered as large a floor area as most other stands at the show, though the overall effect was rather cramped and 'tacky' next to the slick industry leaders like Apple and Quantel.

With some notable exceptions, the same thing could be said for the contents of the stand as well. The third party distributors and developers did their best as usual but the stand lacked the heart that Commodore themselves should have provided. The excitement factor would have been boosted by several all singing, all dancing Amigas with every peripheral and add-on available attached to them. Add a team of enthusiastic, innovative art and design students – regular Amiga users – as operators, and some original graphics could be generated before the punters' eyes. (I could easily provide some excellent students if you are listening, Commodore!)

A professionally-produced but 'all-Amiga' video, showing continuously (at low volume to avoid disturbing the temple-like atmosphere), would help as well, but no such luck. Commodore management seem to have no real understanding of, or enthusiasm for, the remarkable graphic potential of the Amiga. There must by now be thousands of excellent Amiga images available, and hundreds of stunning animated sequences produced wholely on Amigas. Why are they not on show, flaunted at every possible opportunity? And CG89 was certainly an ideal opportunity for flaunting.

But enough of this carping. What was on display amongst the 'booths'? One major theme was 'boosting the Amiga's colour' with everything from 8-bit to 24-bit colour cards and frame buffers plus a cheap and cheerful colour scanner from ASDG capable of up to 18-bit colour.

ACS Frame Buffer

The big suprise of the show (though only to be seen on the Commodore stand for one-and-a-half of the three days) was the Amiga Centre Scotland Frame Buffer. 16-million-colour displays have become very popular recently in the Macintosh world but until now only the £6000 'Vista' board, (operating only via a PC bridgeboard in an A2000) could show 24 bits per pixel on an Amiga. (See 'That Extra Bit of Colour' over the page for an explanation of 'bits per pixel'.)

Amiga Centre Scotland's fully operational prototype board is driven directly by the Amiga and can display 16 million shades at 900x600resolution – on a standard 1084 monitor!!! The price should be below £1000.

The story of the initial evolution of the board is typical of the enthusiast-driven, rather than 'mega-corporation finance' driven world of the Amiga. Three young designers based in Oxford, Jan (he prefers to pronounce it Yan) Jones, Andrew Moss and Alan Tucker, used an Oric Atmos to develop the original version over a period of several years. They built the first running Amiga version in mid-August '89 and contacted Martin Lowe at ACS toward the end of September. An enthusiastic Amiga supporter (though hardly a mega-corporation), he has funded the current version.

This has 3 meg of RAM available, allowing full double buffering of images. The board is likely to be relatively cheap because the designers have found a way of using cheap DRAM instead of expensive Video RAM. To use all of this lovely colour, of course, you need software that can generate RGB files. The 'DigiView' digitiser from NewTek produces 21-bit RGB files, though this huge range of shades is reduced to suit the chosen Amiga mode internally before an image is displayed. It shouldn't take much to persuade these RGB files to display 2.2 million colours though.

Byte by Byte's *Sculpt-Animate*, *Caligari Professional* and *Optiks* all display 24-bit images direct to the ACS board, as the pictures here confirm. The new Sharp JX100 colour scanner could also show 18 bits per pixel colour, perhaps using a modified version of ASDG's ScanLab 100 software. (See the box entitled 'Not So Scantily Coloured', over.)

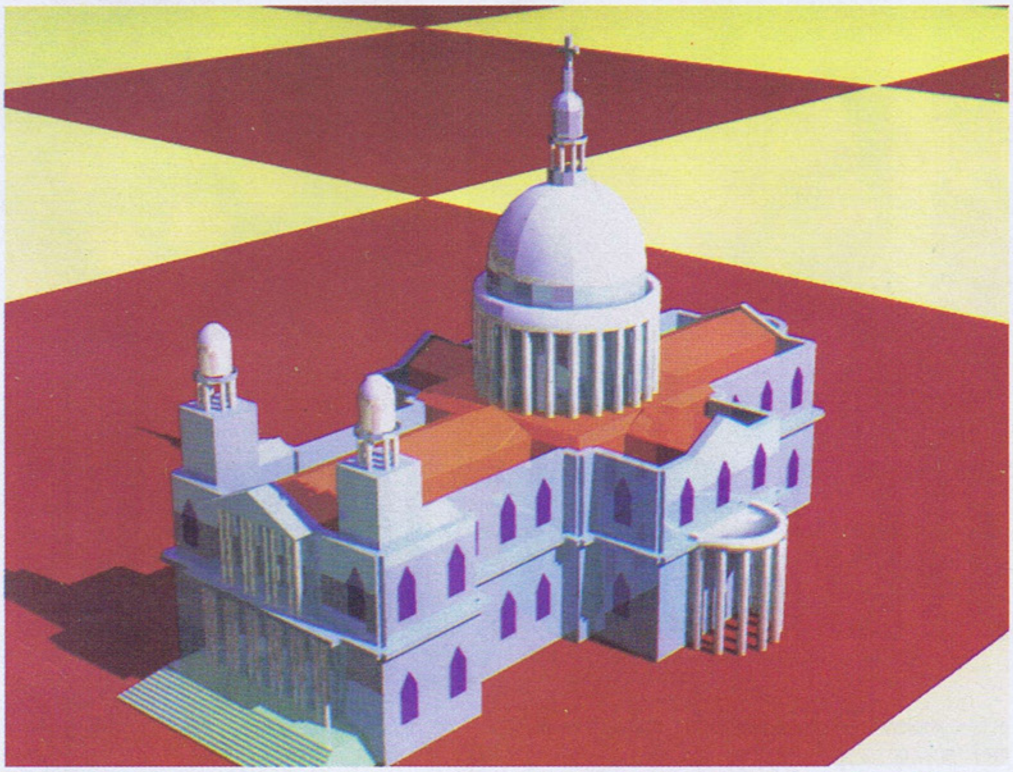
Similarly the 8-bit/pixel (256 colour) version of *Photon Paint* that Microillusions are rumoured to be developing could also use the ACS board. These last two are actually more likely to be seen first on the Hi-Tension 'Amigraphex' 8-bit colour boards which were also at the show though in a much more finished state than the ACS board. Considering that the Amigraphex boards are so near to production, their quality of display was rather disappointing, especially next to the ACS prototypes. First impressions can be very misleading, though, and anyway there jolly well ought to be quite a difference between 8- and 24-bit displays.

The support of Commodore and other, third party developers for the Hi-Tension boards plus the expected arrival of a Commodore 8-bit board are exciting prospects. Nevertheless the development of Apple's 32-bit Quick Draw standard and the rapid growth of 16-million-colour Macintosh systems are fast leaving the Amiga's early colour advantage way behind. The ACS board is a logical next step. It would put the Amiga back up alongside the Mac in display ▸

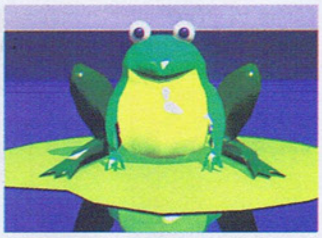
AMIGA CENTRE SCOTLAND

Over the last three years the Amiga Centre Scotland has gained a reputation for importing new and innovative Amiga products that are unobtainable outside the US or Germany. Martin Lowe, the founder of the company, is constantly on the search for new ideas, hence the 24-bit buffer board. His latest project is the promotion of *X-Windows* for use on the Amiga.

***X11*, written by Dale Luck of GfxBase, uses TCP/IP over Ethernet for connection to other machines making the Amiga by far the cheapest way to support *X11* server and clients. For further information contact Martin Lowe at Amiga Centre Scotland, tel 031 557 4242.**



This stunning impression of a cathedral was rendered with the aid of the Amiga Centre's Frame Buffer.



All three prints reproduced here lose much of their 16 million-shade impact is lost in print.



Another Amiga Centre product, this goblet is emarkably real.

NOT SO SCANTILY COLOURED

ASDG, developers of the Professional ScanLab interface and software for Canon flatbed colour scanners, can now drive the new Sharp JX100 scanner using their latest 'ScanLab100' software. Uniquely, the hand-held JX100 is placed over the original artwork so that the three passes required for RGB information can be made by the moving scan-bar within. Scans at 18 bits per pixel (262,000 colours) can be made over an area of 4x6 inches at 200dpi.

The software can operate in a number of ways on the RGB information, processing and analysing the image to produce an IFF file in any of the Amiga modes. The JX100 transfers data at 115,000 baud, 10,000 bytes per second via the Amiga serial port. It costs £695 including VAT and software. For more details telephone 0923 817548.

capability if Commodore would support it. The disagreement between ACS and Commodore over several ACS staff not wearing suits on the CG89 stand may prevent this. Let's hope not.

Commodore seem to see the way forward only in terms of 'making it' in a big way. This would be to the advantage of all Amiga users, but the unconventional enthusiast developers must not be jettisoned on the way.

Real Things

Many of you will have already seen the enigmatic 'arty' advertising for *Real Things, Horses.* Having missed Robin Bilson, the producer of the Real Things series, at the PC Show, it was rewarding to speak to him at CG89.

He was there in his 'RGB Studios' incarnation to demonstrate the 'instant' animation power of *Deluxe Paint III* and *Real Things, Horses,* the first in a line of realistic "animation kits". The idea of *Real Things* is to allow non-artists the chance to get to grips with the immense power of *Deluxe Paint* and at the same time get away from the themes of 'shoot-em-up' and horror in so many games. Initially they are aimed at education and are structured as hierarchical tutorials, but the pictures, brushes and animations provided on disk are perfect for artists of any age and skill level.

Dan Silva's innovative 'animbrushes' are so simple to use that once an animated sequence has been captured, anyone can paint it onto the screen, constructing detailed choreographies with ease.

"Horses" is based on the work of the late Cecil Trew. Her drawings of animals in motion are ready-made for animation and the kit provides accurate animbrushes of horses walking, cantering, galloping and jumping as well as more conventional pictures and brushes of the sequences that went to make them up. Thoroughly recommended, *The Real Things* series is available price £24.95 including user guide, anatomy leaflet and subject folio, from RGB Studios, tel. 082 581 2666 or Digipro Ltd, tel. 0703 703030.

Photorealistic Paris

What about the rest of the show? By far the majority of the floorspace was taken up by companies marketing expensive top-of-the-range equipment for the graphics and TV industry. Apple in particular are starting to make a big showing, whereas Atari and Acorn were nowhere to be seen.

For 'ordinary' PCs, Autodesk were showing their *Animator* desktop video package. Much as I hate to say it, this looked really good and at £199 it was quite cheap (though it needs a pretty powerfull – and therefore expensive – 286 or 386 IBM PC or 100% compatible, with VGA display to run it).

Elsewhere, most of the images and animations were of the whirling plastic toy genre. One of the animated films on display, however, PARIS 1789, produced by Thomson Digital Images, was of a quite different school.

In the next issue of *Amiga Format* Jan Kaliciak, a traditional animator and film maker, describes this remarkable film. To make Paris 1789, TDI, in association with Ex Machina and Institute National de l'Audiovisuel, used their state-of-the-art modelling, rendering and animation system EXPLORE 2 running on RISC based IRIS 4D workstations. PARIS 1789 was runner-up at the1989 Computer Graphics Film Festival. It gives a brief foretaste of an entertaining future for us all. ■

THAT EXTRA BIT OF COLOUR

To produce a genuinely realistic image in full colour with a computer it is necessary to have millions of shades available inthe colour palette. To display this image, each pixel in the bitmap has to have many bits or 'switches' available.

Imagine the pixel is a lightbulb that is controlled by one switch; it could be either off (black) or on (white). If it were controlled by two switches, both could be on, both off, one on and the other off, and vice-versa, ie four combinations, four colours. Each extra bit (or switch) per pixel doubles the number of colours that it can display. Therefore 256 colours requires 8 bits (2x2x2x2x2x2x2x2=256 or 2 to the power 8). 24-bit displays therefore have more than 16 million colours (2 to the power 24 equals 16,777,216 colours).

Naturally enough, all these added colours add greatly to the burdens of the CPU and operating system. A 24-bit picture can be 1.5 megabytes in size so a hard disk is essential. If 24-bit systems are to become standard, a new, much larger capacity disk system or cheap removable hard disks will have to be developed.

Similarly, with such large files, any form of animation would be very memory and speed dependant, and RAM animations become really huge and unpractical. Expensive single frame controllers are the only realistic means of recording this sort of animation.

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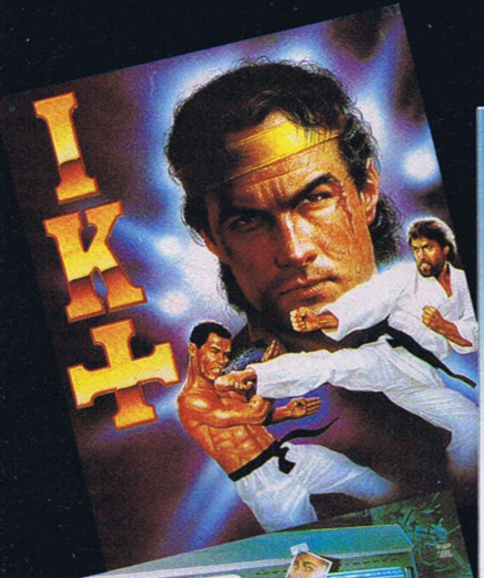
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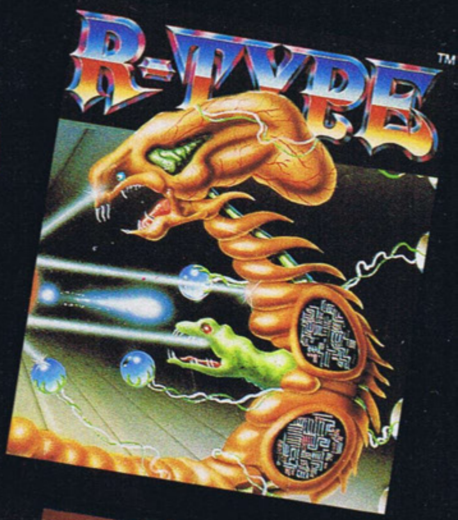


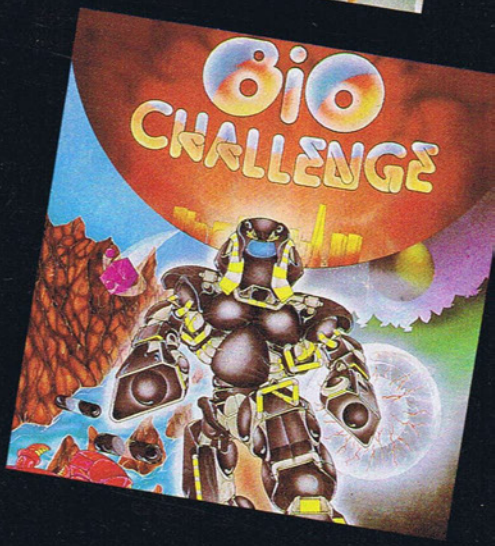
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IK+

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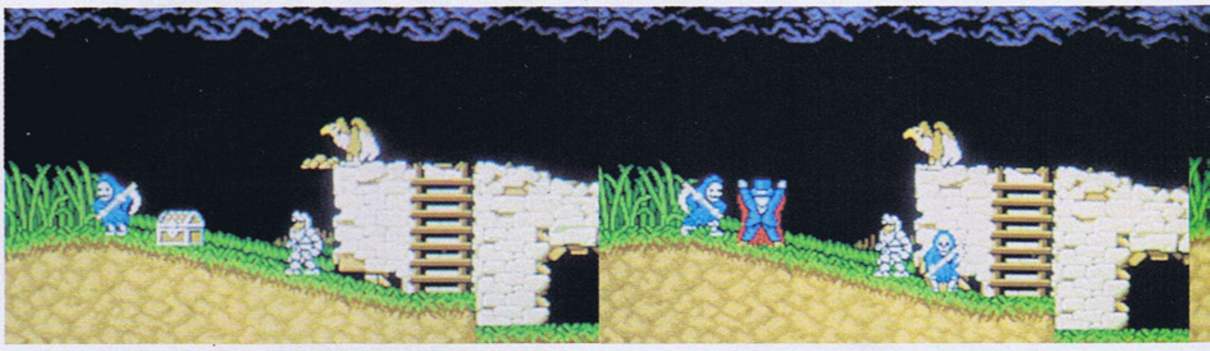
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SCREEN PLAY

90s

WELCOME TO THE 1990s. A decade that will see the games world expand and improve beyond all recognition. Amiga Format will be there to cover the developments as they occur: starting right now. Welcome to the new decade and welcome to the reviews section of the 90s.

1st Right: **Aha! A magic chest appears from under the ground.**
2nd Right: **After a few blasts a magician emerges...**
3rd right: **...to cast a spell on poor old Sir Arthur.**
Far right: **Oh dear! Our poor hero has become a defenceless waterfowl.**



US GOLD £24.99 ■ Joystick

GHOULS 'N'

In days of old when knights were bold and the nasty demons ran off with pretty girlies, there lived a brave knight named Arthur. Three years after he succeeded in rescuing his sweetie, the beautiful princess Hus, the nasty creatures of the Netherworld have risen and made off with her a second time.

Unsurprisingly Arthur is more than a little miffed, so armed with a plentiful supply of throwing lances and a sturdy suit of armour, the knight sallies forth into the ghostly regions to save his love.

The actual gameplay of *Ghouls 'n' Ghosts* is in the same format as its predecessor *Ghosts 'n' Goblins.* Arthur, under your control, runs along leaping across platforms and blasting various spirits. You begin with an infinite supply of sawn-off lances to hurl at attacking nasties, but you can upgrade weapons along the way by picking up pots dropped by skeletons or by opening chests. Occasionally, a magician emerges from these chests and turns you into a bow-tie wearing duck, which is surprisingly useful for dodging the odd particularly annoying flying wotsit thingy.

If you open a chest to find a suit of armour, you will be blessed with a mega-weapon, such as flares (no, not flared armour trousers), lightning or a "wall of death", depending on the weapon you currently have. You begin in the graveyard at the edge of the town, as in the first game, but take a different route through the underworld, passing guillotines, swamps, giant skeletons and deserted windmills to name but a few. At the end of each area is a large and fearful guardian creature, which requires quite a number of blasts before it dies. Once it has been despatched to its evil source it leaves a key for access to the next level of the underworld.

If you manage to fight your way through all the levels and reach the heart of the spirits' domain then you can take the Princess back to safety... but for how long this time?

GRAPHICS AND SOUND

It's no good. There's no avoiding the phrase 'arcade quality'. In fact, it's remarkable how similar the Amiga conversion's graphics are to its arcade counterpart.

The sprites are wonderfully drawn and the animation is as slick as you could hope for, with not a flicker to be seen as they whizz about the atmospheric backgrounds. Every creature has a separate character and there are plenty of them too!

The sound is of an even higher standard than the graphics. The lack of effects is more than made up for by the stunning music. The 'power LED off' trick has been used to get the best quality sound possible from the machine and has enabled sound wizard Tim Follin to produce the most stunning effects.

The tunes range from jolly cartoon ditties to hypnotic Tangerine Dream-style pieces. Let's hope we see (and hear) more from these guys soon.

LASTING INTEREST

Arcade conversions are often good fun for a few goes, but the appeal fades after you've spent hours playing and still get absolutely nowhere. Once you start playing *Ghouls 'n' Ghosts*, however, it's hard to drag yourself away. Sure the going is hard, and it will take you a good while to get through, but instead of frustration at not getting off the level, determination sets in, pushing you to beat just one monster more.

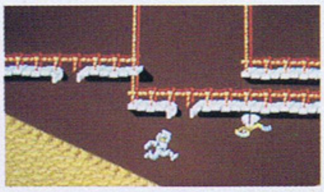
Every level has a totally different atmosphere, thanks to the change in graphics and music in each, so that you just keep playing to see the next level and hear



Above: **Could be worse – it could be raining!**
Right: **Not your usual pet tortoise named Flash, here. Oh, no.**
Below: **Ha! Nay clobber on and still able to kill the big guard.**

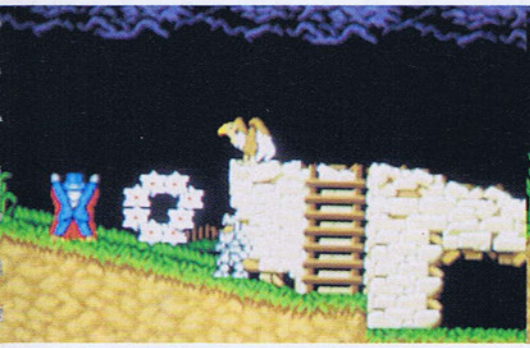






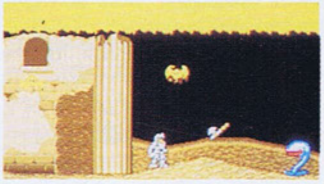


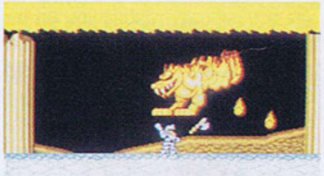
Top: **They don't build bridges like they used to. The bottom falls out of Arthur's world and Arthur falls into a pit.**
Above: **"You wouldn't believe it! Size of belicopters they were!"**



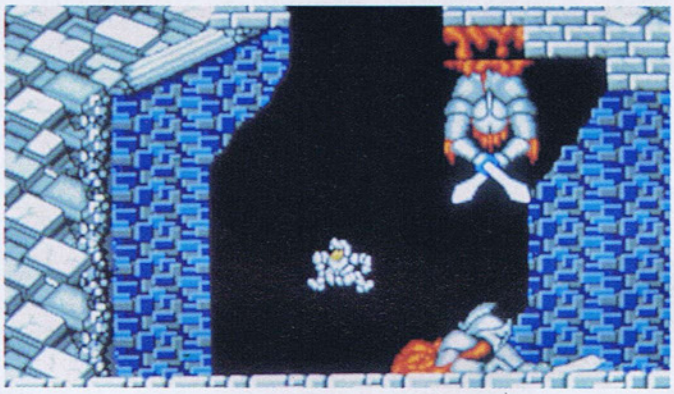


GHOSTS





Top: **Things begin to heat up towards the end of Level Two.**
Above: **Er... nice doggie! Sit! Come on, hellhound, sit!**
Below: **Death follows Arthur up some spooky steps. Altogether now... "Dem bones, dem bones..."**









Top: **On the lift. "Second floor – lingerie, cosmetics and nasty sword-wielding demons".**
Above left: **Didn't your mother ever tell you it's rude to stick your tongue out? Apparently not.**
Above right: **Eye, eye! What's all this then? Well, whatever it is it's not at all friendly. Run away! Run away!**

another tune. The going is extrememly tough, so it's doubtful you'll finish the game too soon, but just try to stop yourself going back to play until you succeed!

JUDGEMENT

These days it's a good idea to reserve judgement on an arcade conversion until you've played it for yourself. Just going on a big name isn't really enough. Well, I'm happy to say that *Ghouls 'n' Ghosts* is a first-rate conversion worthy of any arcade gamer's attention. The look and sound could be straight from a coin-op machine: some of the most impressive seen on a licensed conversion for a long time.

The pleasure of *Ghouls 'n' Ghosts* transcends the audio-visual delights on offer, though. The playability of the game will keep the most adept players waggling their joysticks for hours. It's still not that often you see licences of this quality on a home machine, so *Ghouls 'n' Ghosts* is certain to please fans of the original: but whether you've played the coin-op or not, you should give it a try. You shouldn't be disappointed.

Maff Evans

GRAPHICS	8
SOUND	9
INTELLECT	2
ADDICTION	8
OVERALL	91%

THE RATINGS EXPLAINED

GRAPHICS

Good graphics are an important part of any game: if the power is there, it should be used to the full. Both static and moving graphics come under scrutiny in this rating, but remember, graphic wonders alone do not a great game make...

SOUND

With stereo capabilities the last thing you want to hear are Spectrumesque beeps, right? Title tunes and effects all add atmosphere to a game and good sound can greatly increase your enjoyment.

INTELLECT

How much real thought do you have to put in to play the game? Just because a game's mindless doesn't necessarily mean it's bad, but a game with a high Intellect rating says immediately you'll need to think to gain maximum enjoyment.

ADDICTION

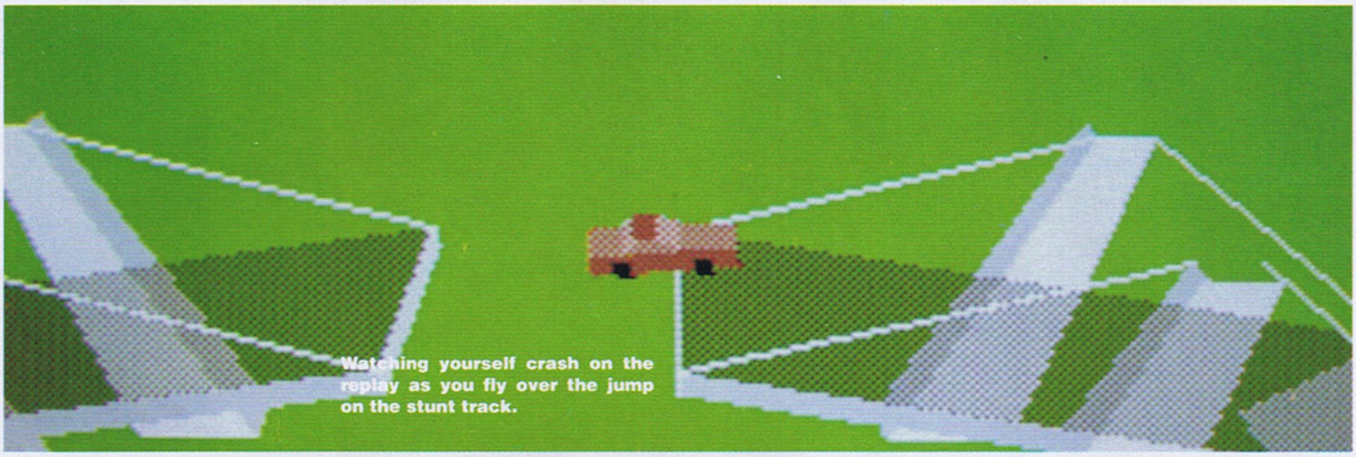
How easy is a game to pick up and play? How much sheer fun will you get from it? Will you keep coming back? Important questions, all answered by a look at the Addiction rating.

OVERALL

A percentage mark that takes into account all the ratings, plus extras like lasting interest, packaging, documentation...

THE TEAM

Andy Smith, was with *ACE* right from Issue One. He wouldn't know an op-code from a hole in the ground, but that's small comfort to the hundreds of games he has mastered. He loves any type of game, be it a shoot-em-up, strategy game, arcade adventure... or anything else! *Bob Wade* started reviewing with *Personal Computer Games* and has worked for *Zzap!64*, *Amstrad Action* and *ACE*. There's no-one in the business with a better idea of what makes a great game... *Maff Evans* has recently joined us here on *Amiga Format*, but his background on *Zzap! 64 Amiga* has given him the kind of experience that makes him one of the most tenacious games experts around. ■



Watching yourself crash on the replay as you fly over the jump on the stunt track.

HARD DRIVIN'

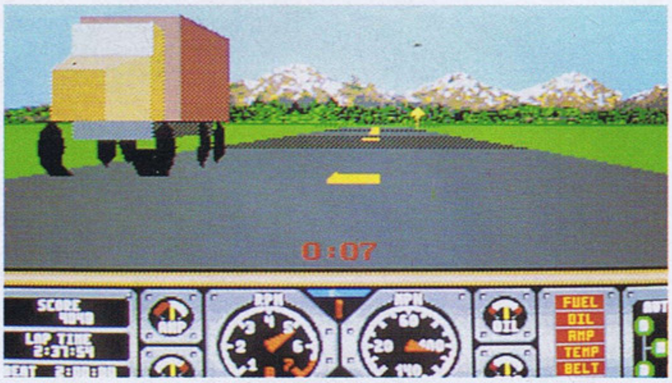
DOMARK £19.99 ■ Mouse, Joystick and/or Keyboard

During the Amusement Trades Exhibition International at London's Olympia in the Spring of '89, one coin-op game was making its world premiere on the Atari stand. It was billed as "The most realistic simulator ever to hit the arcades" and was stealing the show. Now the Amiga version of *Hard Drivin'* has arrived.

You're in control of a popular sports car, driving as fast as possible around two tracks: speed and stunt. Before starting, you must choose the transmission from automatic or manual (beginners should select automatic). Manual requires the player to shift gear himself either using a joystick as a gear lever or by hitting the right keys on the keyboard.

Then you start driving just before a fork that allows you to choose which track you'd like to take. Assuming you take the speed track, you then have a set amount of time to make it to the checkpoint which is 3/4 of the way round the track and so gain a few extra seconds to make it to the finish (where you get more time to try to do the same again).

On the stunt track the same has to be done, but things are much trickier because there is a bridge to jump, a loop-the-loop to complete and some high banking to negotiate. Speed and steering skills are essential here as it's all to easy to go flying over a jump and crash through excessive speed, or to lose control of the car as you round the bend just before the loop-the-loop and enter the thing at the wrong angle. Getting the hang of controlling the car and cornering at 100+ mph is the first priority, because without it you won't stand a chance of completing either track in under two minutes and proceeding to the Championship Lap which is raced on the stunt track. Incidentally, win. the Champ' Lap and all successive players are required to race against your 'phantom' car.



Hammering around the speed track. On-coming traffic is a real hazard here as you go sliding round the bends.

GRAPHICS AND SOUND

When you're driving, everything is viewed from the driver's seat and it's all solid 3D. There's a nice impression of speed when you're driving and though the other road users look a little basic they serve their purpose (getting in the way, it seems). The instant replay is a nice feature when you crash, giving you a bird's eye view of the accident, although the masking of sprites over backgrounds is decidedly dodgy.

Hard Drivin' looks as much like its coin-op parent as you could reasonably expect. The sound effects, however, are dire. Domark assure us they're taken from the arcade machine, but they're still awful, with weak engine and skidding sounds. Nice intro music.

LASTING INTEREST

The first few attempts will have you thinking 'Corks, this is tough', but it doesn't take long to get to grips with handling the car. After that it doesn't take long to master the tracks and you'll be qualifying for the Champ' Lap almost every time. Although it is, arguably, more of a simulation than a racing game, it's too easy to master, which doesn't do much for the lasting interest.

JUDGEMENT

Despite the bugs (for example, crash on one track and the game will occasionally restart you on the other), it's fun for a while. But take away the best features of the coin-op – continuous feedback through the steering wheel and the manual gear-shifting using a clutch – and you're left with a driving 'simulation' that is really nothing very special at all.

It's a great conversion and all credit to Domark for that, but this is a classic example of a game that may be great in the arcades, but may not necessarily be great on a computer. ***Andy Smith***

GRAPHICS	8
SOUND	4
INTELLECT	3
ADDICTION	6
OVERALL	50%



Reach the checkpoint on the speed lap and you gain a few more valuable seconds in which to make it to the finish line.



Approching the loop-the-loop on the stunt track – if that lorry can make it round the upside-downy bit, surely you can too?



Errm, no: you didn't. Here you're having another go and this time that car half-way round could pose some problems!

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Above: **Catching up with the criminal on the first stage. Bash into him and the damage meter** (left of screen) **rises until it reaches the top, at which point the criminal is forced to stop. Then it's time to arrest him.**

CHASE HQ

OCEAN £24.99 ■ Joystick

Believe it or not, one of the most dangerous places to apprehend a suspect in America is around their car. American policemen refer to it as the Kill Zone, because suspects tend to get very itchy trigger fingers just as the police move in to make the arrest.

Fortunately, in *Chase HQ*, the conversion of the Taito coin-op, no chances are taken. You're head of the Los Angeles Special Criminal Investigation department and that means the perps you pursue have to be approached with brute force.

A normal day's work involves driving around in your two-gear turbo charged Porsche 928 waiting for the inevitable call from Nancy at Chase HQ outlining the next mission. Then it's a case of foot to the floor and tear along the freeway until the suspect is sighted. Once visual contact is made, the only way to treat these crims is to bash into their car often enough to force them to pull over, then make the arrest. There are five stages to the game, each one chasing a different criminal, and for each stage you have to sight the crim before the time limit runs out (you'll be in no doubt when you've spotted them because a large arrow with the legend 'Criminals Here' appears).

Manage it and your time is increased to allow you to get enough bumps on the car to force it to stop. Once the first hit has been made on the car, a damage meter appears on the left of the screen indicating how many more hits it needs to stop it.

There's more to it than that, though. For a start there are the other road users to avoid as well as roadside obstacles. Colliding with anything causes a loss of speed and consequently a loss of time, so try not to do it eh? Then there are the route choices: a large arrow will appear at a fork in the road and tell you which way to go (often they're shortcuts that will take you across scrubland). Miss the junction and you'll have to use up the three turbo boosts available for each stage if you're to stand any chance of catching up with the felon. Are you ready Mr Driver?

GRAPHICS AND SOUND

There's a good impression of speed (though not as good as *Stunt Car Racer*) and the backgrounds and roadside buildings and so on are all well drawn. There are some nice graphic touches, like the scrubland and tunnel scenes, and though the animation is a little jerky it suffices. The sound effects are great: screeching tyres, the occasional burst of speech and the siren, and the in-game music is all right too (though you can turn it off if it's all a bit too coin-op for you).

LASTING INTEREST

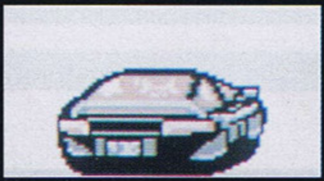
With only two 'Continue' options things are not easy. Getting to that fifth stage will take some doing, so it'll keep you going for a while. There's a high addiction level, so you're bound to keep trying.

JUDGEMENT

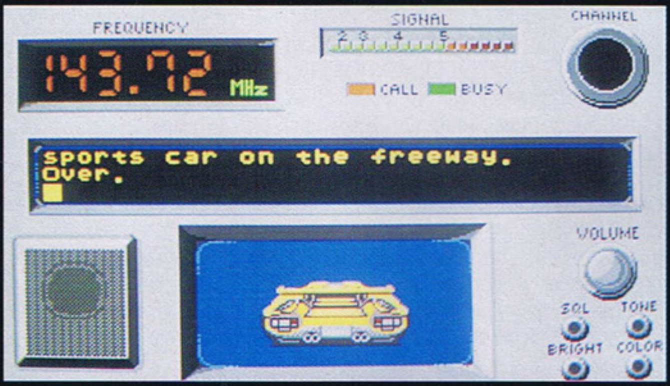
A nice twist on the average driving game, and fun to play. It's very much like its coin-op parent and so suffers a little for not having enough variation, but it's well converted and if you fancy a new driving game or are a fan of the coin-op, you won't be disappointed.

Andy Smith

GRAPHICS	8
SOUND	8
INTELLECT	2
ADDICTION	8
OVERALL	82%

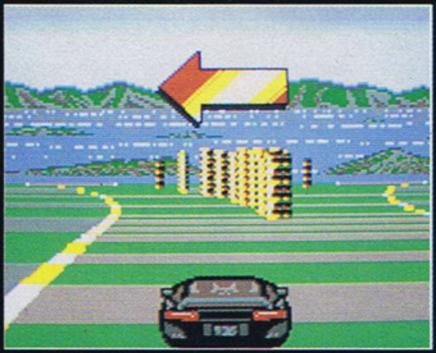


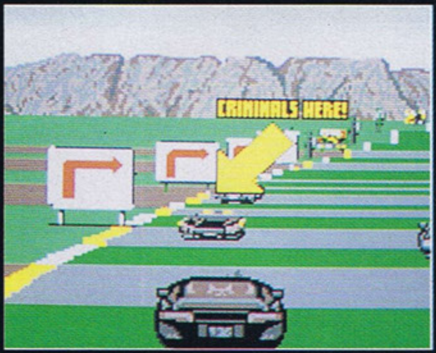




Far Left: **Powering through the tunnel on Stage One and time's running short!**
Left: **Nancy gives you details of the next mission.**
Far Left Bottom: **Back on Stage One and it's cross country time as you take the short-cut.**
Bottom Left: **You're left in no doubt as to which way you're supposed to go!**
Bottom: **Stage Two and another criminal up ahead.**







IRON LORD

UBISOFT£24.99 ■ Joystick and Mouse

After fighting all manner of heathens in the Holy Land for the last five years, the last thing a knight wants is to come home and find his father, the king, has been overthrown by his wicked uncle and fear and oppression rule the land.

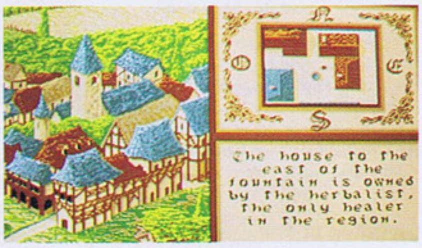
Iron Lord from UbiSoft, which has taken literally years to complete, puts the player in just that situation. Your wicked uncle has gathered an army of hideous monsters and is reported to be about to mount an offensive against the normally peaceful province you call home. Your only hope is to muster your own army then square up to unc and rêstore peace.

Like a typical Cinemaware game, *Iron Lord* is a type of graphic adventure interspersed with arcade games. The adventure side of things has you riding your horse from one location to another, towns to castles to big houses, stopping off at the place and then entering various buildings and interacting with the people encountered. During this phase of the game the screen is divided into three sections, the left side of the shows a picture of the town your in, while the top right gives you an aeriel view of the town and your character is represented by a small animated person viewed from above which you move around and into buildings (well, stand outside and press fire and you enter). Below this window, pieces of text appear giving you info on what's going on.

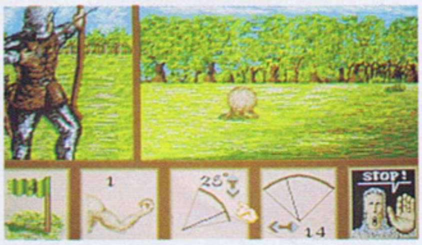
Most of this part of the game involves listening to the characters you meet and doing small jobs for them which will convince them that you're a jolly sound chap and that they really should do their utmost to help you raise an army which you can then lead into battle.



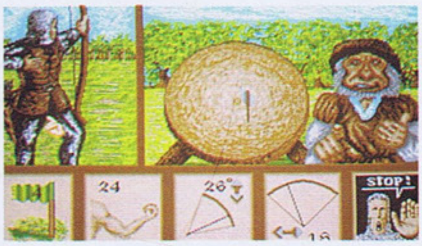
The main game area. This small picture pops up every time you move from one location to another.



In one of the towns. The top right of the screen shows your actual position within the town, with text messages underneath.



The archery contest. Adjust the angle, the elevation and the strength of the shot before letting go and...



...seeing just how well you fared (increase the elevation to 27, the angle to 19 and the strength to 25 and a bullseye is a possibility).

GALAXY FORCE II

ACTIVISION £24.99 ■ Joystick and Keyboard

In a distant Galaxy, the villainous Forth Empire has invaded the five planets of the once-beautiful Junos system and generally made a mess of the place. Junos itself has been reduced to ashes and is now a construction site for a huge battle fortress, from which the Empire intends to dominate the Galaxy.

Faced with impending doom, the rest of the Galaxy's inhabitants call upon the Space Federation to do something about it. The result is *Galaxy Force*, a one-man attack craft of disturbing potency, with a certain person in the driving seat.

Flying over the surface of each planet, you must penetrate the Forthian defences and destroy each of five outpost fortresses. Only once these have been wiped out can you take on the giant enemy fortress and rid the Galaxy of the evil-doers once and for all.

The *Galaxy Force* ship fires lasers which hit anything directly in front of it, and seeker missiles which automatically lock on to enemy targets and home in.

Enemy ships approach from the front and sides firing missiles, and danger is also present in the shape of natural obstacles like asteroids, volcanoes, and huge streams of fireballs.

Survive the airborne defences and you enter the planet's fortress where you fly along a twisting corridor, avoiding the walls and blasting the gun emplacements on floor and ceiling. Reach the end of the tunnel in one piece, and the fortress blows up sending you onto the next level.

The ship's energy level is shown by a countdown timer which constantly ticks away during each mission, and is accelerated by contact with enemy ships, missiles or tunnel walls, once the protecting shields have been depleted. Once the counter reaches zero, your single ship explodes and the game ends.

GRAPHICS AND SOUND

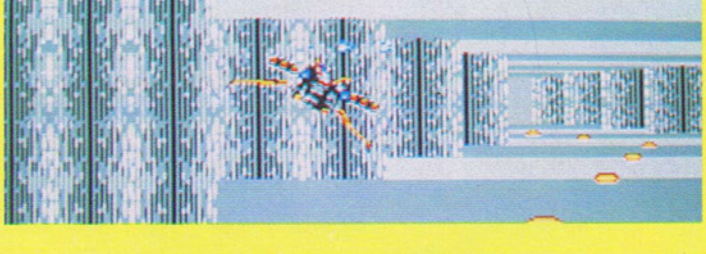
Unlike it's coin-op parent, *Galaxy Force II* is a little sparse on the visual side, with some rolling rasters and small moving graphics attempting to emulate several Megabytes of expandable sprites on the coin-op. The poor frame update and general scarcity of graphics provides little impression of forward movement, and there's no real atmosphere.

The tunnel sequence is more effective: though somewhat lacking in detail, it succeeds in providing a convincing environment of twisty tunnels.

A reasonable rendition of the unusual coin-op soundtrack clanks away during play, although the explosion spot effects are weak. By contrast, a nice snippet of sampled speech warns of upcoming bends in the fortress interior, but is only heard when no effects are playing. This is somewhat annoying since it's useful to have some indication of how to approach the next turning.

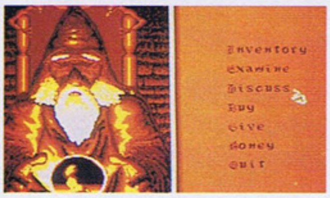


Left: **Bombing and blasting your way through space.** Right: **Penetrating the level's fortress – don't go too fast, those walls are very, very solid!**



Below: **Interacting with one of the game's characters.**





Above: **The wizard can provide you with some useful advice.**

What'll also convice the populace that you're a worthy knight is doing well in the arcade games. For example, winning the archery contest or arm wrestling the local champion in the pub will do your reputation a world of good.

When you finally get the army together, you can then take control of them and organise them in battle (fortunatly there's a game save option, so it's well worth saving it once you've got your army together). Come out the victor and you then have to face the final challenge in an evil labyrinth – ulp!

GRAPHICS AND SOUND

The pictures are all well drawn and the small animated window works fine. Some very nice touches include the horse galloping across the screen whenever you move from location to location. Well presented graphically and the sound effects complement it. Very nice.

LASTING INTEREST

The arcade sub-games are no push over, so it'll take a while to master them. The overall game task is also large and becomes more convoluted the further you get into the game. This will keep you going for some little while.

JUDGEMENT

The arcade bits are tough and add variety while the main quest in the game is well thought out and entertaining. It does tend to get a little repetitive due to the smallness of the game area, but overall it's not half bad and can get quite involving. ***Andy Smith***

GRAPHICS	9
SOUND	4
INTELLECT	5
ADDICTION	7
OVERALL	77%

LASTING INTEREST

Once all five scenes have been played a few times, any urge to continue rapidly fades. The ability to select a starting level only serves to dampen the enthusiasm even more: there are no real surprises in store, and presuming the final sixth mission to merely be a longer and more difficult version of the first five, there really isn't much to look forward to.

JUDGEMENT

This is another case of 'keep moving, blast like crazy and hope you survive'. You don't need to worry about strategic positioning of the ship, since your homing missiles know what's going on better than you do, and the rather chaotic graphics means that it's difficult to follow the action anyway.

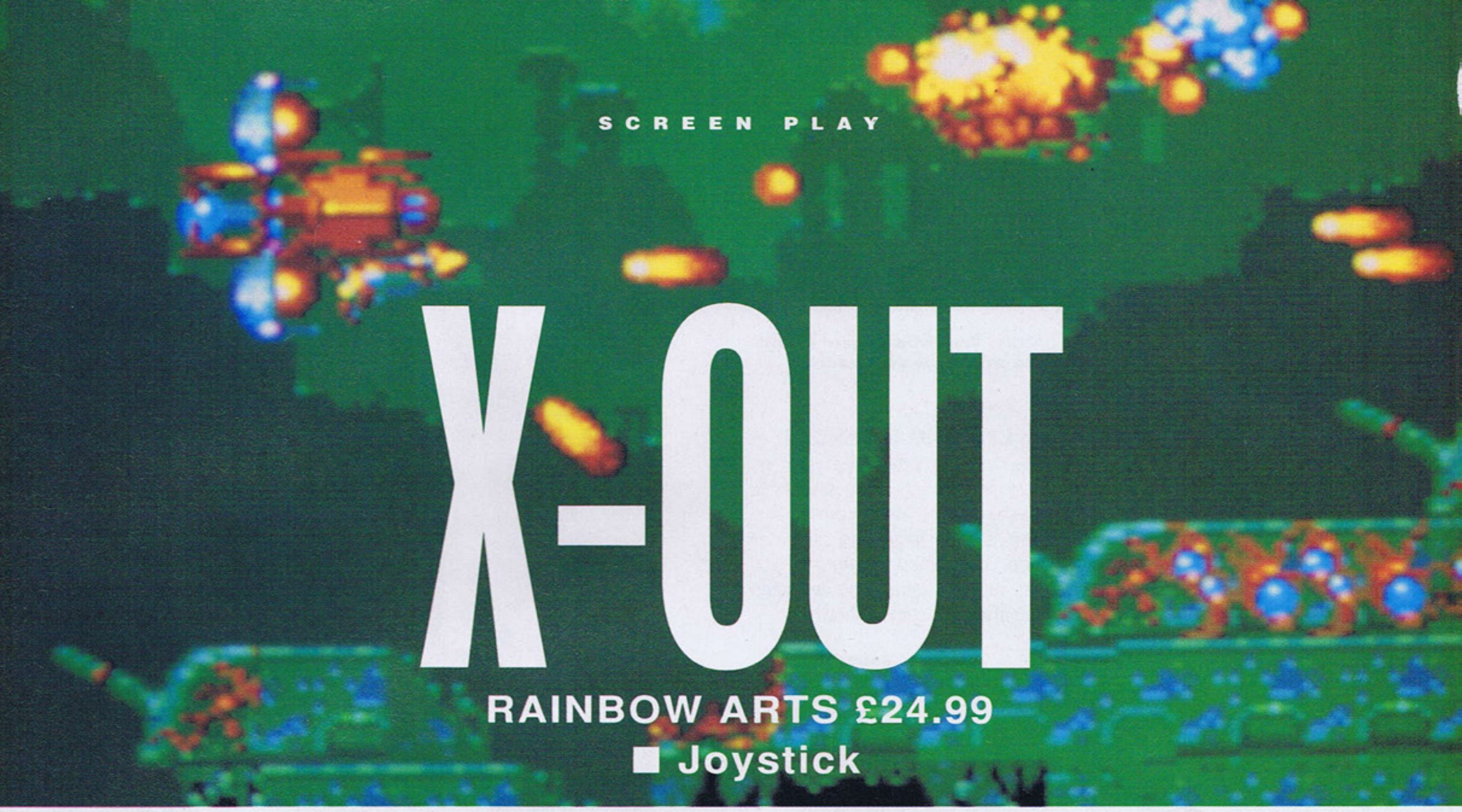
Negotiating fortress tunnels is the more entertaining of the two sections, but the ship's sluggish response means that it's too tricky to be taken at speed, and therefore too slow to get the adrenalin flowing. It's also necessary to regulate your speed so that you don't smash straight into tunnel walls, but can still reach the end of the level before your energy runs out. So it's fiddly to have the speed control located on the keyboard.

Galaxy Force is an ambitious project, but in the light of Activision's success with the equally impressive *Power Drift*, it really looks like a half-hearted conversion attempt. Short on playability, *Galaxy Force* has little to recommend it. ***Steve Jarratt***

GRAPHICS	4
SOUND	5
INTELLECT	5
ADDICTION	4
OVERALL	47%

Another level and more blasting action. Several enemies are locked in your sights, so let 'em have it!





X-OUT

RAINBOW ARTS £24.99
■ **Joystick**

The more things change, the more they stay the same. That's certainly true of computer games. Just as software houses are getting to grips with the power of the Amiga and realise that game concepts unthinkable on smaller machines are possible, out comes a deluge of shoot-em-ups. And why not? Done well, they can be tremendously playable, addictive and enjoyable.

Up there with the best of them have to be Rainbow Arts whose *Denaris,* despite the legal wrangles, is still one of the best shoot-em-ups about. Now comes *X-Out.* Will it steal the crown?

To start with, the game gives the player lots more choices. Right at the start of the game the player enters a shop and is given 12,000 credits to spend as he wishes. This includes purchasing extra ships with which to fight on once the first ship has been destroyed. There are four types of ship available, ranging from the smallest and cheapest which can carry three weapons at once, to the largest and most expensive which can carry up to 12 weapons at once. Of course, the weapons the ships carry all cost money, so there's no points having a ship with the ability to carry maximum weapons if that means you only leave yourself enough credits for one measly weapon.



The first guardian. The head (bottom left) **detaches itself and roams around the screen.**

There's a wide selection of firepower available from the shop including satellites that circle the ship firing when you do. There's even a choice of circling patterns available when you decide which satellite to buy. Then there are three way firing pods, smart bombs and flame throwers all of which must be considered.

Whichever you choose you're going to find the going tough in this left-to-right horizontal blaster which starts underwater and takes you through crystal structures and volcanic scenery. There are flying (or should that be swimming?) nasties as well as a plethora of ground-based gun turrets and the like that all need destroying.

You must also avoid the jutting out pieces of scenery if you're hoping to make your way past the mid- and end-of-level guardians and back into the shop to spend the credits you've collected along the way and get stuck into the next of the eight levels.

GRAPHICS AND SOUND

The tunes playing throughout are the sort of jolly sounds you'd expect to hear in this type of game and the various explosions and other effects are par for the course too. The graphics are good and everything is smoothly animated although the screen does slow down occasionally when there are lots of sprites on screen. The backgrounds vary from very nice to a bit dull, but there's usually enough happening to take your mind off the graphics.

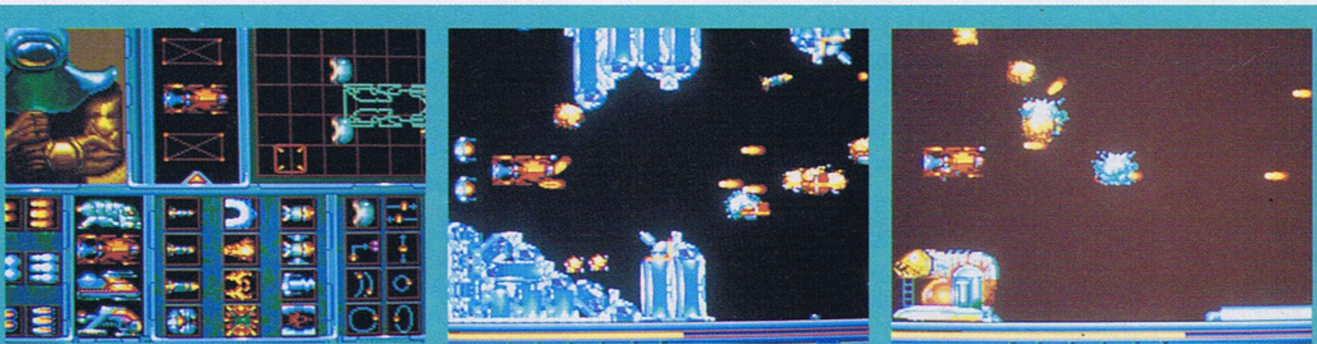
LASTING INTEREST

It's a toughie, so it'll take you ages to complete: and even if you do manage to finish it, it still has enough variety to come back to if you fancy a blast at any time.

JUDGEMENT

Denaris still rules. *X-Out* is very competent and a good example of the genre, but what new features it has don't lift it head and shoulders above a dozen or so other quality shoot-em-ups. If, however, you really need a new (and different) challenge, then it's well worth checking out. ***Andy Smith***

GRAPHICS	8
SOUND	6
INTELLECT	3
ADDICTION	7
OVERALL	78%



Spend your credits in the shop before setting out. Should you go for a couple of not-so-hot ships, or one porky hard ship? The second and third pictures here show your ship moving through other levels: note the satellites and other firepower that can be bought at the end of each level (assuming you make it that far, of course!)



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Joystick, Mouse or Keyboard



Barrax hordes attack as a fighter enters a subterranean section.

Don't crises come up at just the wrong times? Just as you are enjoying a well-earned rest from defending Earth against alien oppression, an urgent message is sent from Galax Lunar HQ cancelling all leave. It seems that Earth's saviours against the Barrax Empire didn't make it home after their mission.

After commanders Mayers and Bergin had devastated the Barrax troops on Urania, the enemy sent an attack cruiser to kidnap and return them to Terrainia where they are even now held hostage. Rather than bend before the aggressors' demands, Galax Lunar HQ has decided to launch a daring rescue mission. It has been decided that it would be more benificial to send a couple of small attack fighters to sneak behind the alien defences and rescue the heroes, rather than sending a huge battle fleet, which stands the risk of alerting the Barrax troops.

You play the Squadron Commander chosen to head the rescue mission in this follow-up to the frantic *Hybris*. The basic style of the game is similar to its predecessor, being a vertically-scrolling shoot-em-up with additional weapons, but instead of allowing you simply to zoom up the screen blasting everything in sight until you get to the end, the game presents a scrolling planet surface section with a series of craters leading to various underground caverns. The enemy craft from all these sections have to be taken on before the captured commanders can be freed.

You start off with the basic splat 'em laser weapons and a limited supply of devastating Nova Smart Bombs. These weapons can be replenished and improved as you go on by shooting carrier craft to reveal a coloured weapon pod, the weapon awarded depending on the colour of the pod.

GRAPHICS AND SOUND

One of the most impressive things about *Battle Squadron* is its superb appearance. The graphics are so well designed and smoothly animated that you could easily think that you are looking at a coin-op. The sprites and backgrounds have a strong combat atmosphere, with metallic tanks and ships moving around futuristic industrial landscapes on the surface and all manner of weird creatures underground. Sound is of an equally high standard, some parts of the tunes and the odd effect sounding very Japanese and extremely powerful too.





It's easy blasting ground targets (Above) **compared to the underground creatures** (Right).

LASTING INTEREST

The action is very frantic and compulsive but, as is the way of many shoot-em-ups, once you've managed to smash your way through the alien defences once it's likely you won't return for a repeat attack. This is probably the reason for the number of scrolling blasts on the market and their success. Still, the going is tough, and it's doubtful that you'll complete it in that much of a hurry, so it should manage to keep its hold on your trigger finger for a while at least.

JUDGEMENT

The genre of vertically-scrolling shoot-em-ups is like formularised pop music: it has to exist, because that's what the majority of young gameplayers appear to be into. But it's still quite nice to see one that's as expertly done as *Battle Squadron*. It looks and sounds attractive, the gameplay is frantic, but when all is said and done there isn't a great deal of depth to the game. Still, this shouldn't put off blast fans, since this is designed specifically for them, and does the job beautifully. *Battle Squadron* is an excellent example of how to write a shoot-em-up. ***Maff Evans***

GRAPHICS	9
SOUND	8
INTELLECT	3
ADDICTION	7
OVERALL	82%



Feeble cannons won't get you very far, so find yourself a weapons carrier...



...and blast the living daylights out it to collect a weapons pod.



Now you've got porky he-man weapons to attack the enemy.



Zooming down to regimental level. Select the regiment, move the silhouette and then issue the order.

ARC £24.99 ■ Mouse

PRINCE

Simulating mediaeval warfare is this one or two player wargame from new boys ARC. Two feuding princes on a small island have decided to do away with each other, so they've both amassed an army (ranging from 45 to 514 men, decided by each player at the start of the game) made up of cavalry and foot soldiers and decided to go after each other. The objective is simple: kill the other player's prince before he kills yours.

Once the size of the armies has been decided and the particular island picked from the eight possible, the armies are plonked down and battle begins. There are three levels of visibility – whether you can see the opposing army – from totally visible even though it's on the other side of the island, to only visible when your troops are on screen as well. There are three zoom-in options too: the first shows your army represented by the prince's banner, the second shows the army represented by regimental commanders, and the third takes it right down to company commander level, showing each soldier.



The screen displays your army's initial position on the map.

In magnified mode all the player gets to see is a small area of the map with his troops on, through a small window on the left of the screen. Issuing orders also depends on the level of magnification: regimental orders at level two and company at level three. The orders available vary for the type of troop, but generally include walk, charge and withdraw.

To issue an order, simply select the company or regimental commander, choose the order from the list at the side and then move the silhouetted company or regiment to another part of the small window. The troops then follow the orders (as best they can) and, since everything happens in real time, you can select another commander or issue more orders.

When the two armies meet battle occurs automatically and usually the fight continues until one prince has been killed. At this point no more orders can be issued by either side, but both sides will continue with their last orders until either they're fulfilled or the other prince is killed, and the battle is called a draw. Then it's back to the start-up screen and time to fight again.

GRAPHICS AND SOUND

The action window has a distinctly Populous-like feel about it. At the most magnified level, the ground and troop detail is great and the impression of a real undulating landscape is strong. It's all very colourful and well animated, though things can get very confused if you don't select the 'remove corpses' option. For a wargame it's a looker. The intro music is also excellent and the in-game effects are very good if a little repetitive.

LASTING INTEREST

Playing solo, the game soon runs out of steam unless you pep it up and 'limit set' yourself by giving your opponent loads more troops. Playing against a human opponent is much more of a challenge, especially as you can data-link two machines (even Amiga-ST) and play a remote opponent. The lack of options and variety, though, will tend to take the edge off of the game sooner than a more involved game would have.

JUDGEMENT

Despite the great presentation there are a few basic parts to the gameplay that let it down. The moving of troops is very annoying as it can be very fiddly to get a particular regiment or company into the place you want: it's all to easy to make a mistake and send them off to the wrong place, only to have to go and do it all again. Frustrating, because everything happens in real time.

It's also annoying that the troops give little indication of when



More order issuing in process, this time at company level.

they've completed an order and are ready for the next. The zoom-in feature and the small play window are nice ideas that just don't quite come off. Billed as a game that's "ideal for arcaders who want to experience the wargame phenomenon" it falls between the two being far too limited in both areas.

Andy Smith

GRAPHICS	7
SOUND	7
INTELLECT	5
ADDICTION	5
OVERALL	54%


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IT CAME FROM THE DESERT

MIRRORSOFT £29.99

■ Joystick

Cinemaware are a unique bunch of American programmers. Since 1987 they've been writing Amiga games to a brief of capturing the 'feel' of a film on a computer. In the past that's usually meant excellent graphics and atmospheric soundtracks, that have, sadly, been offset by a lack of gameplay and terribly frustrating amounts of disk swapping.

Recently though, Cinemaware seem to be nearing their goal – *Rocket Ranger* not only looked great but had some good gameplay – so have they finally got there with *ICFTD*? Well, things don't get off to a good start. Unless you have a Meg of memory at your disposal then don't even bother thinking about it. And it's also supplied on three disks, so unless you're also blessed with a second drive you'll still have to endure frustrating amounts of disk swapping.







An interesting situation arises. What you decide to do now will alter the whole way the game unfolds. Jackie Monroe could well prove to be more trouble than you bargained for, so tread carefully!

The theme of the game is a tribute to the awful-but-great 'big bug' B-movies of the Fifties cinema: things like Them!, Tarantula and Black Scorpion. You play the part of an American geologist who's working in the town of Lizard Breath, in the middle of an American desert, for the last month or so since a meteorite fell on the outskirts of the town.

Being an intelligent chap, (and because you've read the game manual) you realise the meteorite has caused a colony of ants to mutate to gigantic proportions and you also realise that in about 15 days time they'll probably wander into town and have a party, thus ending Lizard Breath as we know it. Unless you can persuade the mayor to call out the National Guard who can then use tanks and jets to go blast the queen ant and destroy her nest.

Soon after starting, you'll realise the game is a cross between a graphic adventure and an arcade adventure: you spend most of the time in adventure mode, interacting with the characters in the game and trying to find clues that will pinpoint the whereabouts of the nest, and gather evidence to show to the mayor. Interacting with characters involves selecting responses from a list when certain situations arise, for example: there's a knock on the door, which do you choose – shout "Who's there?", ignore it, open the door or leave by the back door? Which you choose affects the way the whole game goes from there.

The arcade games include things like knife fights, flying an aeroplane and putting out fires, and though none of them are tough they add variety to the game. It's the outcome of these arcade games that determines whether you're injured and thus have to spend valuable time in hospital recuperating, or get closer to your goal (time really is tight – a minute game time is roughly equal to a second of real time – so there's even a *Gauntlet*-ish escape-from-hospital sub-game!) Will the gi-ants destroy Lizard Breath? Well, you're in the director's chair.

GRAPHICS AND SOUND

Every location is well drawn and all the arcade games are well animated and excellent looking. The sound is also good, though the tunes do tend to get a little repetitive. It really is almost like being at the movies on a Saturday night.

LASTING INTEREST

Winning the game is going to take a while, but once you have it's doubtful you'll play again. It's not a game that will keep you satisfied for months.

JUDGEMENT

This is the closest Cinemaware have come to producing their interactive movie. The whole feel and atmosphere of the subject material has been caught excellently and, unless you're playing with one drive, it moves along nicely. The arcade games are simple, but it's the adventuring side of things that really keeps you at it. Good stuff, but only if you've got the upgrades. ***Andy Smith***



The map of the town.

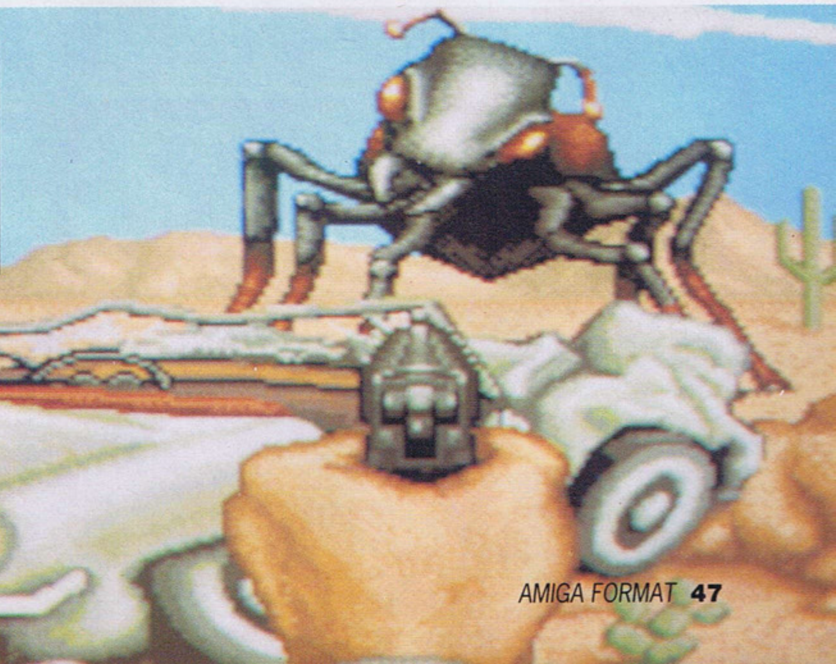


Select a place to go there.



Time to recce the town.

GRAPHICS	9
SOUND	7
INTELLECT	3
ADDICTION	7
OVERALL	80%



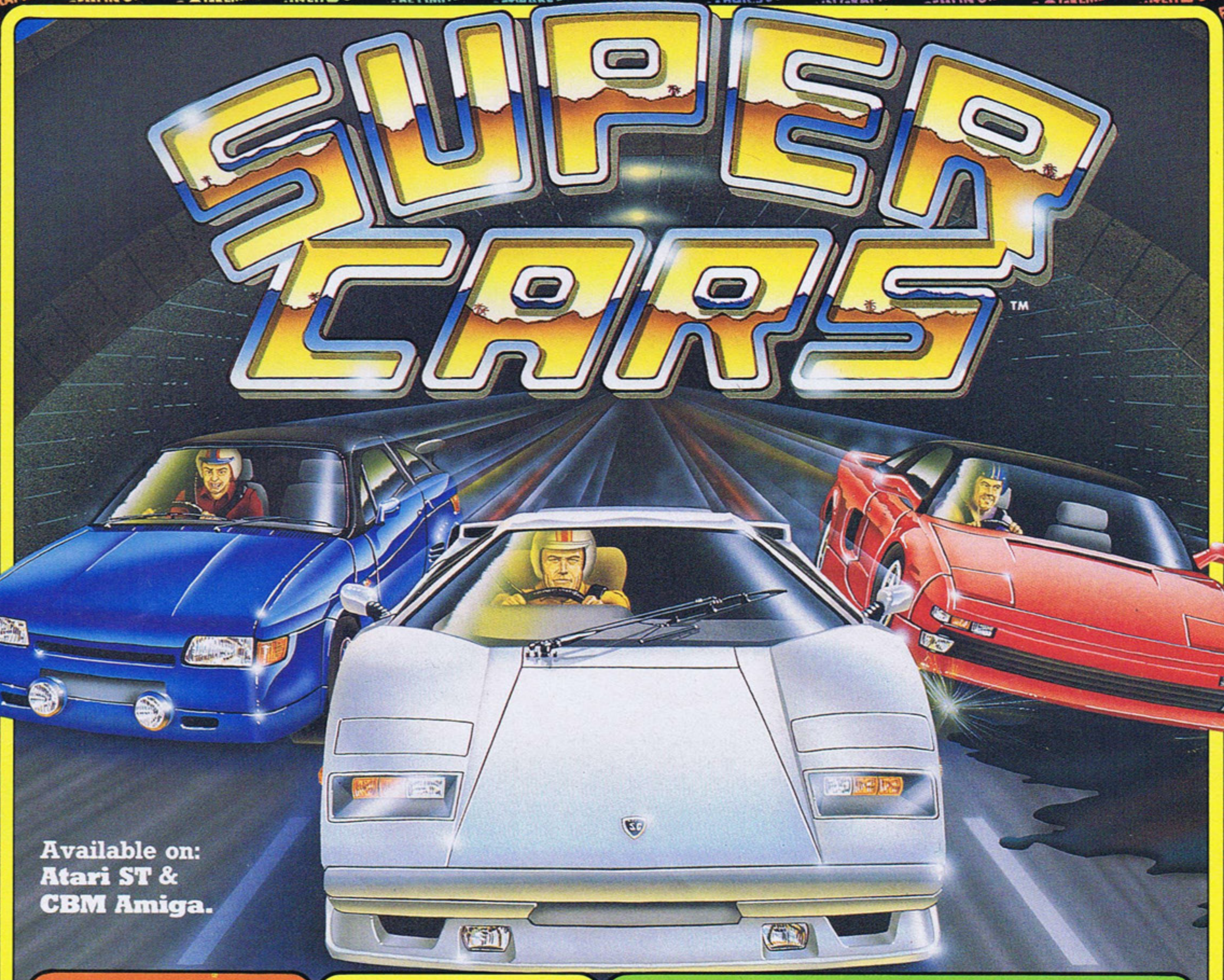


Jackie's car looks rather as if it's seen better days.



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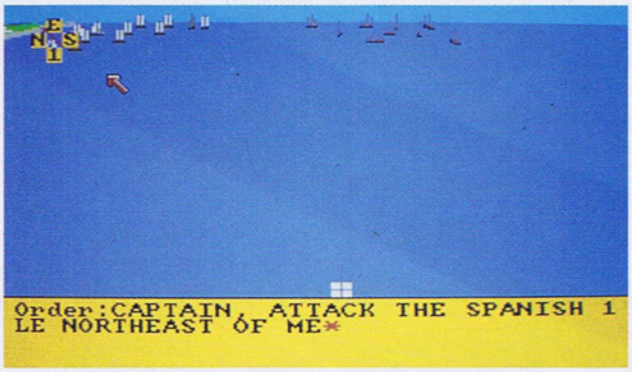
Screen shots from Amiga version.

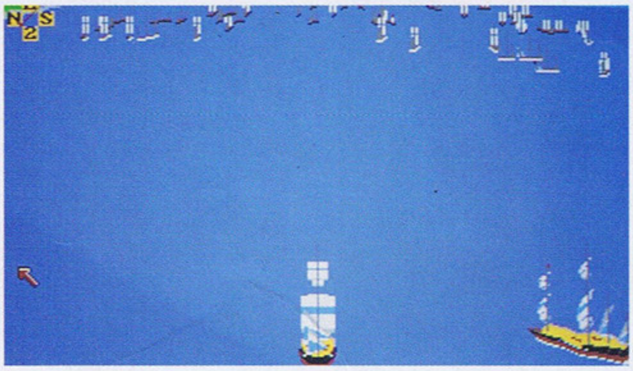


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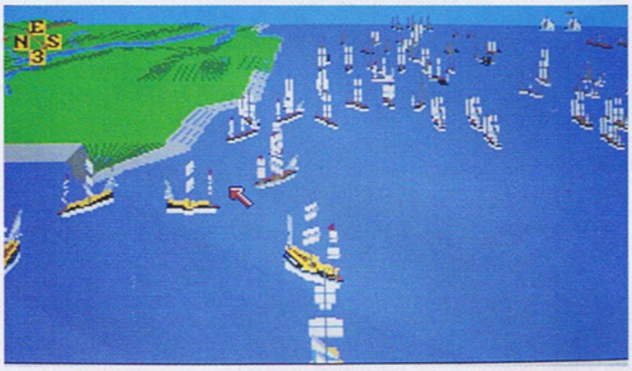
ARMADA

ARC £29.95 ■ Keyboard and Mouse









(From Top to Bottom) **The start of the game, and after shadowing the armada for a couple of hours, the order to attack is made. Long range tactics have been adopted to keep out of range of the Spanish guns. As the two fleets move closer, though, the English adopt grappling tactics (get right next to an enemy ship and attempt to capture it). Considering the size and number of Spanish galleons, that may not be a wise move. The bottom picture describes a dire situation as Howard's squadron becomes out-manoeuvred and out-gunned. It looks like it's going to be down to Drake to save the day.**



GRAPHICS	6
SOUND	N/A
INTELLECT	8
ADDICTION	6
OVERALL	82%

Back in 1588, life was a good deal simpler. It was also a lot harder for most people and, to top it all, most nations seemed to be permanently at war with each other. Back in 1588 England was no different and thanks to a whole series of events that gradually led to poor relations between England and Spain, things were just about ready to erupt again.

Catholic King Phillip II of Spain had just about had enough of the protestant Queen Elizabeth and so assembled an armada of some 130 ships at Lisbon with the intention of sailing to England, then escorting an invading army over from Flanders. The rest, as they say, is history.

Duke Medina Sidonia, the commander of the Spanish, did, however, have secondary orders which he was unable to fulfil. The King (so many observers believe) had told the Duke that if things got a bit tricky then to invade the Isle of Wight which would get right up the Queen's nose and put pressure on her to concede to some other Spanish demands.

This one or two player wargame based on the great event deviates from history and starts just as the Duke has decided to invade either the Isle of Wight or a prominent sea port located on the English mainland.

There are two main games: the cut-down version of the game allows the player to fight with fewer ships and for only two days, whereas the full-blown game is played over five days with many more ships on both sides.

Whichever you decide to play, the game system is the same. You take on the role of either Lord Howard or Medina Sidonia and issue orders to the rest of your fleet based on what you can see in the four compass directions from your position on the flagship. To get the hang of the game it's wise to select the option that allows you to view things from other commanders' positions or landmarks.

Orders are issued every half hour of game time (approx five minutes real time) by simply typing them in on the keyboard. The orders are then received by either the squadron commanders (Drake or Hawkins) or a particular ship (Victory or Lion) depending on who they were sent to. The distance the message target ship is away from the flagship has a distinct effect on the amount of time it takes for the ship to receive and act on the orders (ordering a ship that's out of your line of sight, for example, is tricky).

The sort of orders available are usually basic – attack, patrol or disengage – but also very crucial. Should Drake's squad go after an enemy squadron using long-range or short-range tactics? The option picked could be crucial to the whole battle. Once you're happy with the orders sent, the game then moves the squadrons, resolves any combat and updates the screen before the whole process starts again.

GRAPHICS AND SOUND

No sound (except the Plymouth one!) The graphics are very basic, too, though the ships are recognisable as ships. Graphics have never been a major consideration in a wargame, as it's better to have functional ones than merely pretty ones, but these are fine (although the update is not the fastest seen).

LASTING INTEREST

There's only the one scenario, which limits things, but that said, the game is complex and will take you a long time to play, and even longer to master. The two player option really does add even more lasting interest.

JUDGEMENT

Unless you spend a lot of time with this game, you're not going to get the best from it. Work needs to be put in during the game and unless you're a real wargame fan you're better off looking for something else. If you are a wargamer though, you'll enjoy the chance to fight a decent sea battle and it's well worth taking a look at for that reason. It's not as good as the earlier game *Borodino*, but it's a nice change and certainly no disappointment. ***Andy Smith***

TITUS £24.99 ■
Joystick or Keyboard

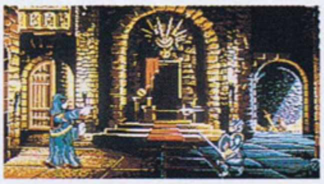
KNIGHT FORCE

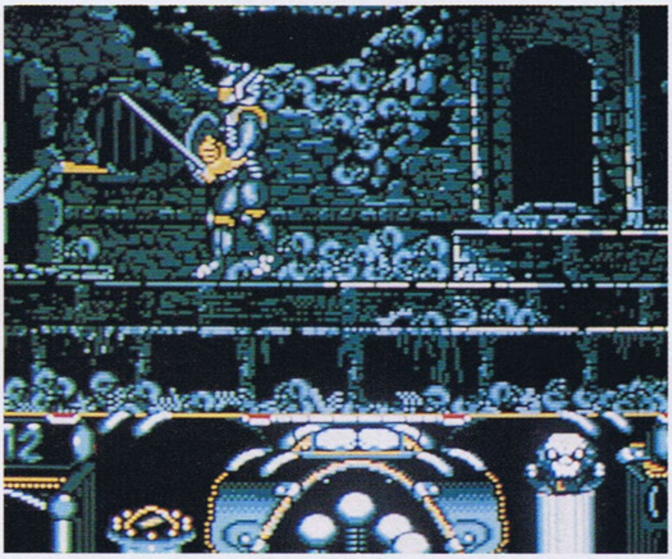
Red-Sabbath, the evil wizard, has come forth from the mountains in an attempt to terrorise the peaceful land of Belloth. That's not all he wants to do, though, because Belloth is the crossroads between five time zones. If Red-Sabbath can gain control of the land he can control the time zones.

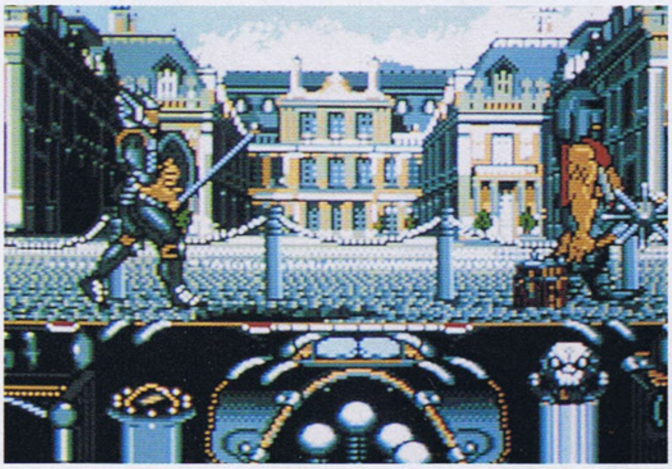
To effect his dastardly plot, RS has kidnapped the princess Tanya and the keeper of the land, the Knight of Thunder (this means you!) must go to fetch her back. The problem is that the wizard has created five clones, one in each zone, who must be destroyed before the girl can be freed.

The action starts with your good self positioned in front of five stone pillars, each one representing a time zone. Choose which zone to enter and then not only must you defeat the wizard's clone, but also find seven amulets that are being carried by his minions in different zones. Collecting an amulet in one zone is not always as helpful as it could be because for an amulet to work you need to be in the corresponding time zone: but collect one and you're immediately put back in front of the pillars so that you can choose the next zone.

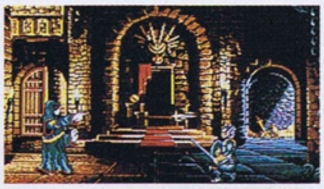
So, with monsters – walking, crawling, bouncing and flying – and a sorcerer in each zone to defeat, other hazards like jumps and collapsing floors may seem less of a trouble. Then there's the time limit to consider. But by far the biggest problem is the nasties, which keep coming at you until you kill them off (although others take their place shortly afterwards) so it's as well to get to know the







Left: **Fighting with one of Red Sabbath's clones in the chamber that's present in all time zones.** Above Top and Above: **Battling against some of his minions in two other time zones. It all looks fine here, but the weak gameplay lets the game down.**



eight combat moves and which to use on which enemy. Kill off the clones then walk away from the final battle with Red-Sabbath, and Princess Tanya and the land of Belloth will once more be safe.

GRAPHICS AND SOUND

The backgrounds (for the most part) are superb. The sprites are all well drawn and large. The animation is fine on most bits except the aggressive moves and the walking and jumping is not the best ever seen. The sound effects are curious – your character makes a distinct horse trotting sound as he clip-clops across the screen – and there aren't too many others either.

LASTING INTEREST

It will take a while to complete, but you'll have to be very determined to do so. Stick with it, though, and things begin to improve slightly, but unfortunately not much.

JUDGEMENT

Only having one life is a real pain, especially if you're a little way into the game. The control method used is very awkward and generally you're left feeling the game has too little substance and too many annoying features to keep you at it. A case of nice sprites and backgrounds, but weak and frustrating gameplay. ***Andy Smith***

GRAPHICS	8
SOUND	6
INTELLECT	2
ADDICTION	4
OVERALL	33%

COMMANDO

ELITE
£19.99 ■
Joystick or Keyboard



Super Joe makes his long awaited debut on the Amiga.

Super Joe finally makes it out of the arcades and onto the Amiga in this conversion of the Capcom coin-op that was a hit about four years ago.

It's a vertically scrolling shoot-em-up viewed from above in which the player takes charge of Joe as he goes charging up the screen and into rebel territory dealing death to anyone that gets in the way of his M60 or hand grenades. Enemies appear from all parts of the screen and even from foxholes and behind sand bags.

Make it to the end of each stage and there's a fortress to penetrate before progressing to the next stage, where things are invariably going to get tougher.

This always was a good coin-op and it's nice to see Elite have done a good job with the conversion. It's a little old, but still heaps of fun and tough and addictive enough to keep you coming back for more. ***Andy Smith***

GRAPHICS	7
SOUND	6
INTELLECT	2
ADDICTION	7
OVERALL	71%

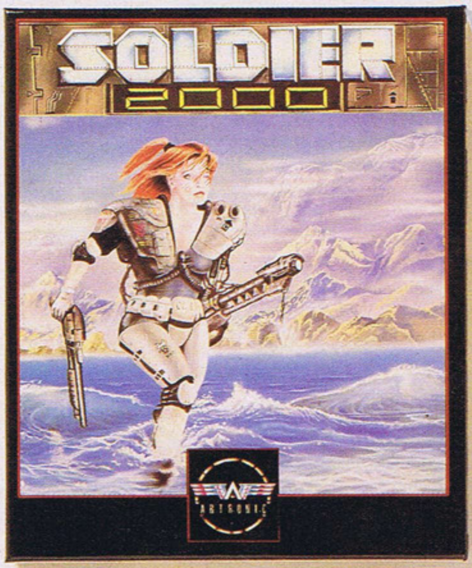
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OMEGA

MINDSCAPE
£29.99 ■
Mouse and Keyboard

As an employee of the Organisation for Strategic Intelligence it's your job to design and test neural cybertanks. Sound easy enough? Well it's not.

Designing a cybertank breaks down into two main sections: mechanical (chassis, weapons systems and so on) and technical (giving the tank some Artificial Intelligence, or AI).

The mechanical side of things is straightforward enough. You're given a budget of 1,000 credits (initially) and have to choose a chassis, drive system, fuel and type of weapon. Designing the AI, however, is another matter.

Here you enter what the game calls the CCL module (Cybertank Command Language) and by building up a simple BASIC-like program you instruct the tank what to do once it gets on the battlefield. If you're completely new to programming of any sort you'll be glad of the inch-thick 'handbook' that comes with the game and which takes you by the hand to gently lead you through building up a tank's AI from scratch. This process includes telling it what to do when it 'sees' (more accurately, scans) an enemy tank and how to go about looking for these tanks.

As an aid there are also 'capsules' – complete AI routines – that can be loaded and incorporated into your design. Once you're happy with the tank, authorize it (the program simply checks for syntax errors or missing bits of tank) and then test it.

Testing involves picking a battlefield (three pre-designed ones are available) and picking some enemies. Then it's a case of sitting back and watching to see if your tank behaves as you hoped. If it doesn't, you go back to the drawing board and try again. If it does, you can proceed to evaluation where you have to fight 10 battles against OSI-designed tanks. Win a high percentage of the battles and your security clearance is raised and your budget increased.

GRAPHICS AND SOUND

Turn the sound off immediately: the trundling and firing effects are grating rather than satisfying. As for the graphics, well, they're far from state-of-the-art because they're very blocky and though they're colourful they're very simple. The text side of things is much better, though, with a suitable futuristic typeface in the AI module. Sounds awful but the graphics do their job: just about.

LASTING INTEREST

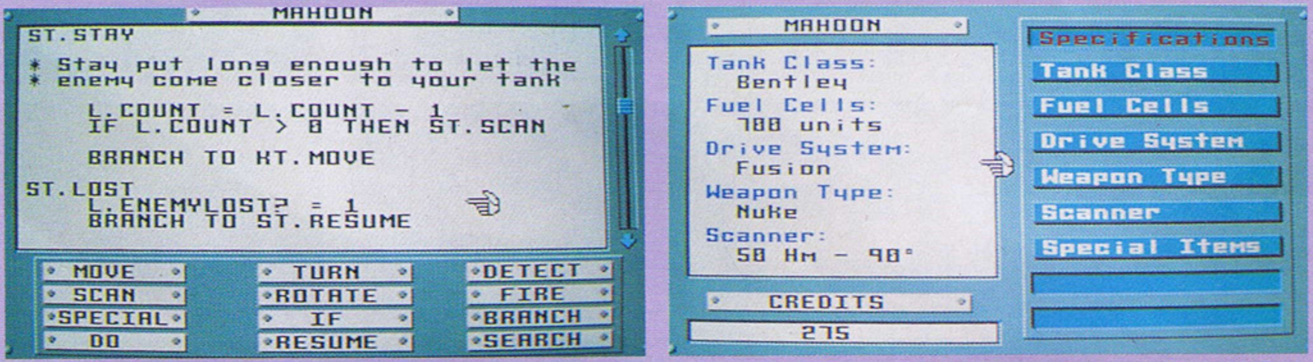
Once you're in, you're hooked and will be constantly coming back to the game to try out another idea. Get used to the program and you can get even more involved by including things like teams of tanks and communications between them. There's even a battlefield designer so you can build your own scenarios. *Omega* has loads of lasting interest built in.

JUDGEMENT

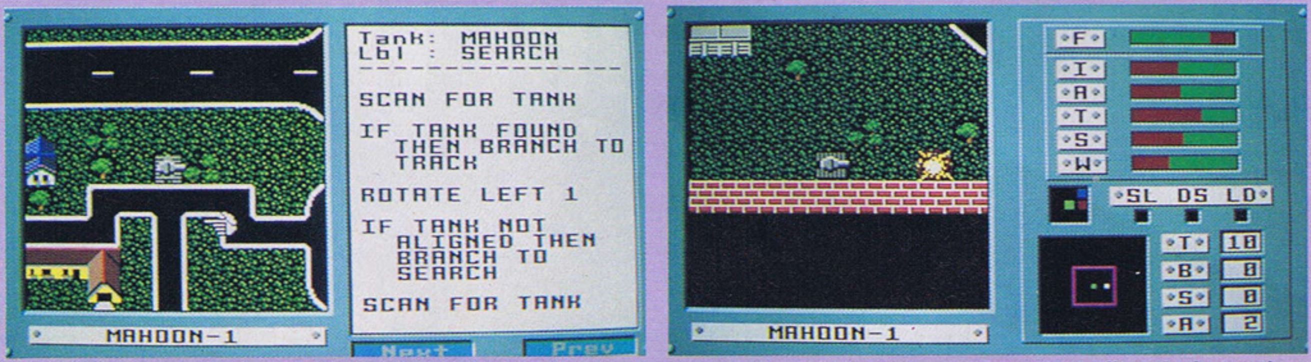
There's something very obsessive about the game: it's one you'll be playing for hours at a stretch and frequently. It's very cerebral stuff and, even though the game does feature battles, it's not going to appeal to straight shoot-em-up fans who just want to spend time blasting at anything that moves.

Puzzlers and problem-solvers are going to love it, though. When you're sat watching your tank in battle, if it suddenly decides it doesn't want to fire any more and you've no idea why, you just have to go back through the AI and hunt down the problem. Which can take hours. Compulsive stuff that's just slightly let down by the presentation. ***Andy Smith***

GRAPHICS	4
SOUND	1
INTELLECT	9
ADDICTION	9
OVERALL	87%



Above: **In the design module. Here you attempt to give your tank some artificial intelligence that it will use once it's on the battlefield. This is part of a scanning routine that tells your tank to wait for the enemy to come to it – a good plan for getting the first few shots in on the enemy. This screen is also where you juggle your credits and get the best weapons your clearance level allows.**



Above: **In the testing module with trace mode on. This allows you to follow the tank's AI on screen and see what effect the instructions have on its behaviour (an essential thing to do prior to putting your tank in for evaluation,** (Above Right)**). That wait instruction seems to have paid dividends as the OSI tank takes a direct hit during the battlefield tests.**

AXEL'S MAGIC HAMMER

GREMLIN GRAPHICS £19.99 ■ Joystick

Isn't life as a young person wonderful these days? Playing in the sunshine with not a care in the world. What could possibly go wrong? Well, a nasty Dragon King could kidnap your girlfriend...

This is what has happened to Axel's lovely little friend Lucy, and Axel being the brave young thing that he is has decided to set forth to the rescue. Now he may be just a young lad, but he's not short of the necessary hero-type mettle. Just a hammer and a ton of courage is enough for him.

Unfortunately, a number of nasty creatures and obstacles lie between him and his girlfriend, such as bubbling lava pits, fluttering bats and deadly wasps. Fortunately, Axel can give some enemies a swift smack with his hammer to take them out and, if that's not enough, then broken blocks throughout the game reveal various power-ups, such as throwing hammers and a tough crash helmet which allows him to headbutt his way to Lucy.



Axel shelters from the snow

You must guide Axel through a series of levels each with an individual style and atmosphere before you can ride off into the sunset with your sweetheart.

GRAPHICS AND SOUND

The design is very much in the Japanese arcade adventure mould, complete with platforms to bounce around on, cutesie characters and twee, jangly tunes. This style of graphics is usually dominated by the dedicated game consoles, so it's nice to see that us Amiga users can get a look in.

The animation is clean, the sprites are jolly and the sound is boppy. Not a quantum leap forward in programming, but just right for this kind of game.

LASTING INTEREST

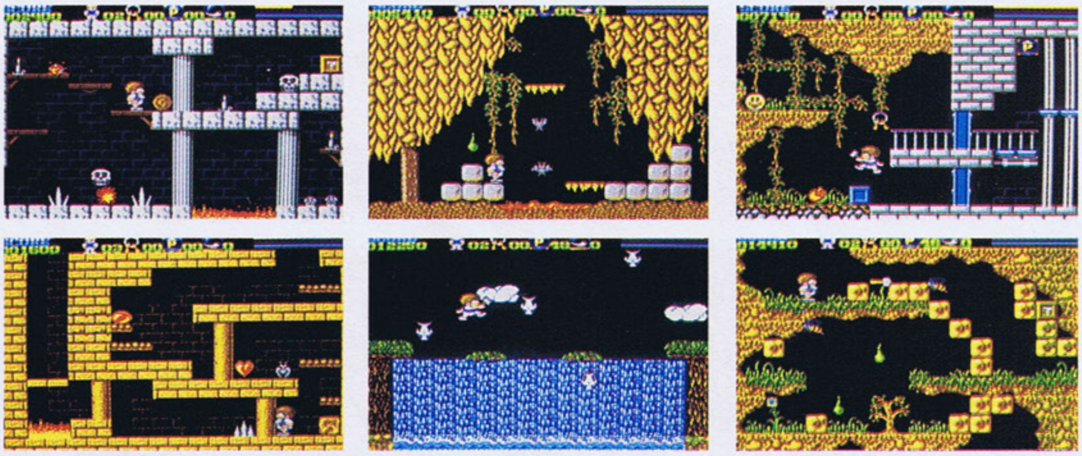
At first death comes very easily to poor old Axel, but once you've worked out the locations of the various power-ups things get a little easier. Completing the first zone gives you an incentive to crack the higher levels, just to see what the next area looks like.

The 'continue play' option means that you don't easily get bored by having to start from the beginning every time, but it certainly doesn't make an easy task of reaching the end of the game.

JUDGEMENT

The trouble is that all possible variations on the platform game have been tried, so any new release has to be something really special. *Axel's Magic Hammer* is by no means a terrible game – the gameplay is lively, the graphics and sound are jolly and the atmosphere cute – but it doesn't quite have that spark which raises it above other games in the field. ***Maff Evans***

GRAPHICS	7
SOUND	6
INTELLECT	2
ADDICTION	5
OVERALL	67%



Top Left: **In the castle, and someone's left the central heating on.**
Top Mddle: **Axel Bellamy is back in the undergwowth.**
Top Right: **Gotta keep up with technology 'aven't you? Axel's in the factory.**
Bottom Left: **Our little hero searches the Aztec tomb.**
Bottom Middle: **Oh, fishy, fishy, fish! Don't slip! Axel can't swim.**
Bottom Right: **The diminutive adventurer gets his potholer's head on for the underground level.**

KICK OFF EXTRA TIME

ANCO £9.95 ■ Joystick

This must be one of the most keenly-awaited expansion disks of all time. Why? Well, if you haven't experienced the joys of *Kick Off*, your Amiga hasn't been used.

Basically, Brian, the disk allows modifications to be made to the original game (and you will need the original *KO* disk) including deciding what sort of state the pitch should be in (soggy, hard and so on). There are also some extra playing formations including



Full strength! Go on! Kick it now!

all-out attack ('Blitz') and all-out defence ('Lockout'). But by far the biggest difference is the inclusion of a strength meter where the player can decide the strength of the kick by hitting the fire button when the small highlight bar at his feet changes colour (black to white: the blacker the line, the stronger the kick.

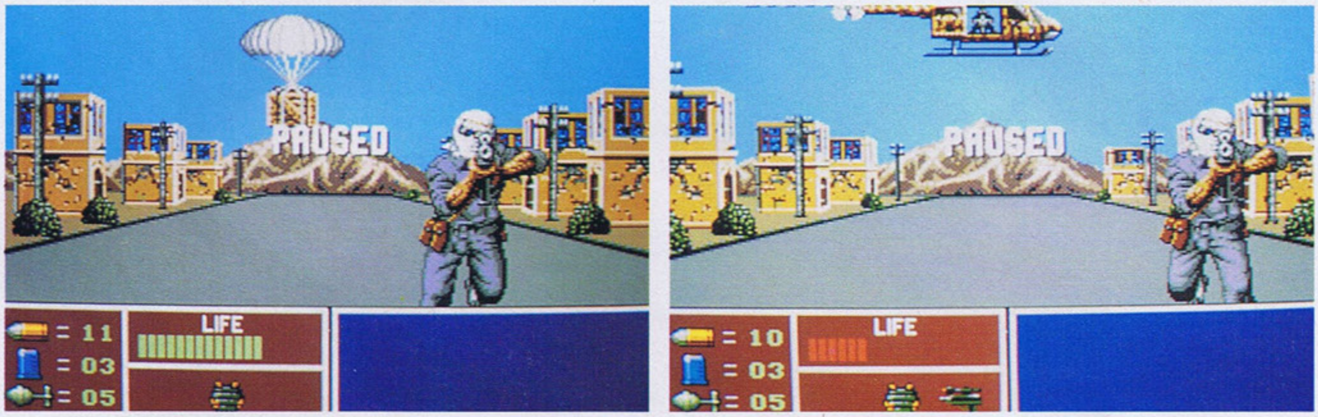
What a great idea all these variations are. What a shame they're a total waste of time. The strength meter just doesn't work as an idea, the different pitches have little effect and the new tactics make little difference. It's almost like you can take all the good bits out of *Kick Off* and play a very average football game. Don't bother with it. ***Andy Smith***

GRAPHICS	8
SOUND	6
INTELLECT	4
ADDICTION	4
OVERALL	45%


CYBERBALL ™
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OCEAN £24.99 ■ Joystick or Mouse

OPERATION THUNDERBOLT



In one player mode on the first stage. Above Left: **Shoot the crates as they fall down (not the parachute) and you'll gain a bonus (extra ammo, a laser sight and so on).** Above Right: **It was a laser sight, which will help when it comes to taking out the heavy stuff like that helicopter – though you have plenty of rockets, so you could loose one of those off and save some of that precious ammunition. A crate containing a power bottle would certainly not go amiss right now!**

The man with the machine gun is back and this time he's bringing his buddy. After rescuing the hostages in *Operation Wolf*, Roy Adams, trouble shooter, mercenary and general tough guy, is back in action, this time with his good mate Hardy Jones.



Boom! Another missile crashes home and inflicts some heavy damage on your life meter.

The follow-up to the smash hit *Op' Wolf* has arrived. Now one or two players can join in the action and rescue some more hostages. Arab terrorists hijacked a DC10 flying from Paris to Boston and re-routed the plane to Africa. Only Roy and Hardy can save the day.

Armed with a sub machine gun and a fistful of rockets, the player has to work through eight stages of enemy territory to reach captives and liberate them. All the action is viewed through Roy's (and Hardy's) eyes and the basic idea is to shoot anyone that appears on the screen before they get a chance to blast away at you.

Things are never that easy, though: the enemy soldiers have back-up in the shape of helicopters, tanks and jets and your ammunition is limited. Just like in *Op Wolf*, extra ammo and rockets are acquired by shooting the crates that parachute down from the top of the screen before they hit the bottom.

In these crates can also be found things like power bottles which restore your energy (a meter at the base of the screen runs down as hits are taken), a bulletproof vest which reduces the amount of damage enemy bullets have on your Schwarzenegger-like chest and a laser sight.

Unlike *Op Wolf*, *Op Thunderbolt* doesn't give you a sight to start with – you have to make guesses as to precisely where your gun is pointing – so gaining the sight is a massive boon (the rotters ensure you start each new stage minus the sight, though, so you have to keep collecting it).

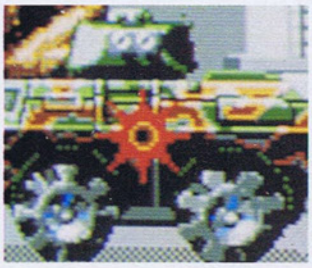
Also unlike its predecessor, *Operation Thunderbolt* has more variety in the levels. Some are horizontally scrolling, some have the enemy coming from the back of the screen towards you and so on. The enemy's arsenal has changed to include not only the familiar daggers and grenades, but also missiles. Make it to the later stages and you not only have masses of the enemy to kill but you also have to ensure you don't shoot the hostages by mistake. It is indeed a dirty job, but someone's gotta do it.

GRAPHICS AND SOUND

The scrolling is a bit jerky at times, but you don't notice it once you get stuck into the action. What you do notice are the excellent sprites and the good backdrops. It looks great and the fine sound effects and bits of speech do their bit to add to the atmosphere. Super, smart, smashing stuff.



Level Two. The situation is looking grim because those APC's are tough to destroy when you've no rockets left. Looks like 'game over' time.





Another game and one of your rockets trashes a helicopter.



Missiles, knives and baddies, it's all too much for one man!

LASTING INTEREST

Boy, it's tough. This is really a two-player game, so unless you've got super-human lightning reactions or are using a cheat mode, you're going to find it tough.

Even in two player mode this game is certainly no pushover and will take you ages to finish. Extra credits help, but not as much as you'd like, because if a player dies on a level the whole level has to be re-done. The difficulty tweaking has been set just right making it very addictive (even more so in two player mode than if you're playing solo) so there's bags of lasting interest.

JUDGEMENT

What a worthy successor to the original. Ocean have done a superb conversion job and captured the gameplay brilliantly. *Op Wolf* was good, but the variety to the levels and the extra challenge make this even better. Completely mindless and extremely violent, but very addictive and playable nonetheless. ***Andy Smith***

GRAPHICS	8
SOUND	8
INTELLECT	1
ADDICTION	8
OVERALL	88%

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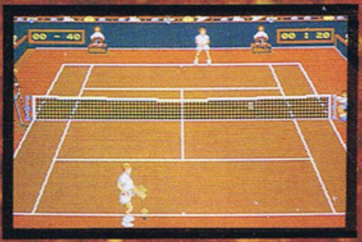
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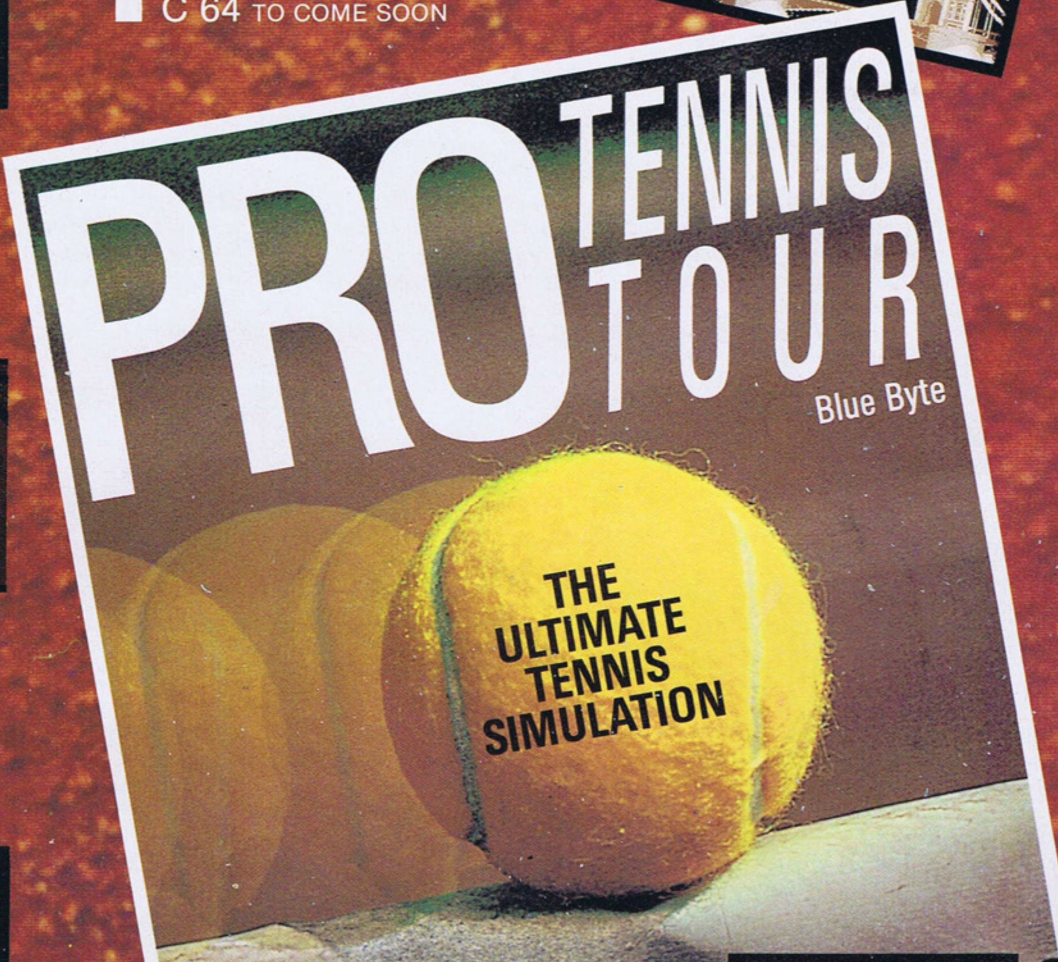
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...and the accompanying graphic shows the sights of Soho square itself.

HOUND OF SHADOW

ELECTRONIC ARTS £24.99 ■
Mouse and Keyboard

The Hound of Shadow doesn't just bite postman: he sends them into the outer darkness, second class. One of the more solid of H P Lovecraft's creations, the Hound finds itself called from the Cthullan kennels and dropped in 1920s London. It is your task to defeat him in this text adventure from Eldritch Arts.

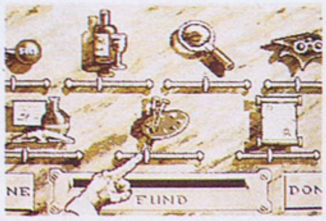
You begin your quest to face the unfaceable, destroy the indestructable, tame the untamable, climb every moutain and ford every stream either by selecting one of the ready-made characters or more cosmically by creating yourself. Once you've got your sexuality sorted out and have decided whether to be American or British, its time to pick a profession (I'll have a doctor please Bob). When battling unearthly canines with bad attitudes it makes little difference whether you choose to be a Gentleman Adventurer – tall, athletic, thick as two planks – or a Psychic Investigator – a whizz with the ghouls but crap at fighting – but this section does give you the chance to get into your role.

With profession in hand it's time to pick some skills: anything from swimming to occult knowledge. Job done, you save yourself to a User Disk. Tally ho! and into the scenario.

The game really hates to see you get lost. In fact it hates to see you going anywhere other than where it thinks you should be. To this end subsidiary characters crop up from time to time, usually when you've taken one turning too many, and helpfully give you directions back to where you should be. This can lead to ho-ho highly amusing situations where Mr Pleasant Gentleman tells you that you look lost and asks you where you want to go. You say "home" and shazam he points you in the right direction. Spooky eh? Well not really, no.

As a straight-down-the line text adventure you would expect the parser to be something special, but strange things happen: the United Arab Emirates are in the World Cup and it doesn't make them Brazil, and the parser is about average. Loads of atmosphere-wrenching 'I beg your pardons' or 'Try agains' litter the screen and there are no Again or Repeat commands. A few of the function keys have been redefined to save you having to type Examine (and gosh you do a hell of a lot of that) but shortcuts are not the norm. This does tend to defeat the purpose of a scenario with should rely on constant, unbroken tension and latent terror.

The first major scene is a seance. You are whisked away in a cab by your chum John who is not the most talkative cove in the world. At the seance, the game, rather than you, manages to work out that the Adept Karmi and his charming assistant Yasmin are fakes. Only after this revelation does the Adept point the finger, or rather the paw, of the hound at a bookish young man. A dowager faints (before you've had the chance to get the brandy out the game tells you that you should help her) and you get to examine a lot of furniture before being lead away by friend John. It's all a bit too quick and there's too much nannying along by half.





Above Left: **Your character's abilities must be bought, in time-honoured fashion, from a limited supply of funds granted you at the start of play.** Above Right: **The seance at which you first meet the hound.**

GRAPHICS AND SOUND

An excellent way to create an atmosphere is by use of music, sound even... well any audio stimuli would have been nice. Unhappily, this chance to enahance the game is missed and you have to make do with a walkman playing old Dr Who soundtracks.

An occasional graphic, such as a staircase, hits your screen in order to ehance the atmosphere. The problem here is that you can have graphics or text but not graphics and text. The atmosphere is fractured rather than heightened using this technique and the best advice is to toggle the pictures off.

LASTING INTEREST

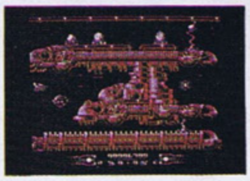
With no sound and graphics which take over the screen, the *Hound of Shadow* relies on long descriptive passages to hold your attention. To give it its due, these are not half bad. There are none of those painful puns which disrupt other, similar, outings. The downside here is that you think that there must be an awful lot to examine when in fact there is very little. Those situations or objects which do require scrutiny are pointed out in no uncertain terms.

JUDGEMENT

To make such slight use of the machine's capabilites seems a great shame. The lack of sound and the rather pallid graphics (the sepia tone of some is, one would suppose, a attempt at recreating the 1920s) only serve to lose concentration. As a tale, the *Hound of Shadow* has a great deal of potential. If you were really set on exploring London, learning a tiny bit about Lovecraft's world (try some of his short stories) and finishing it because it's there, then you might have some fun. On the other hand, the Call of Cthullu board games and a few mates would do just the same job in not a dissimilar manner. ***Tim Smith***

GRAPHICS	5
SOUND	N/A
INTELLECT	8
ADDICTION	4
OVERALL	45%







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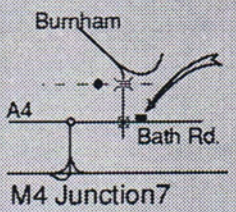
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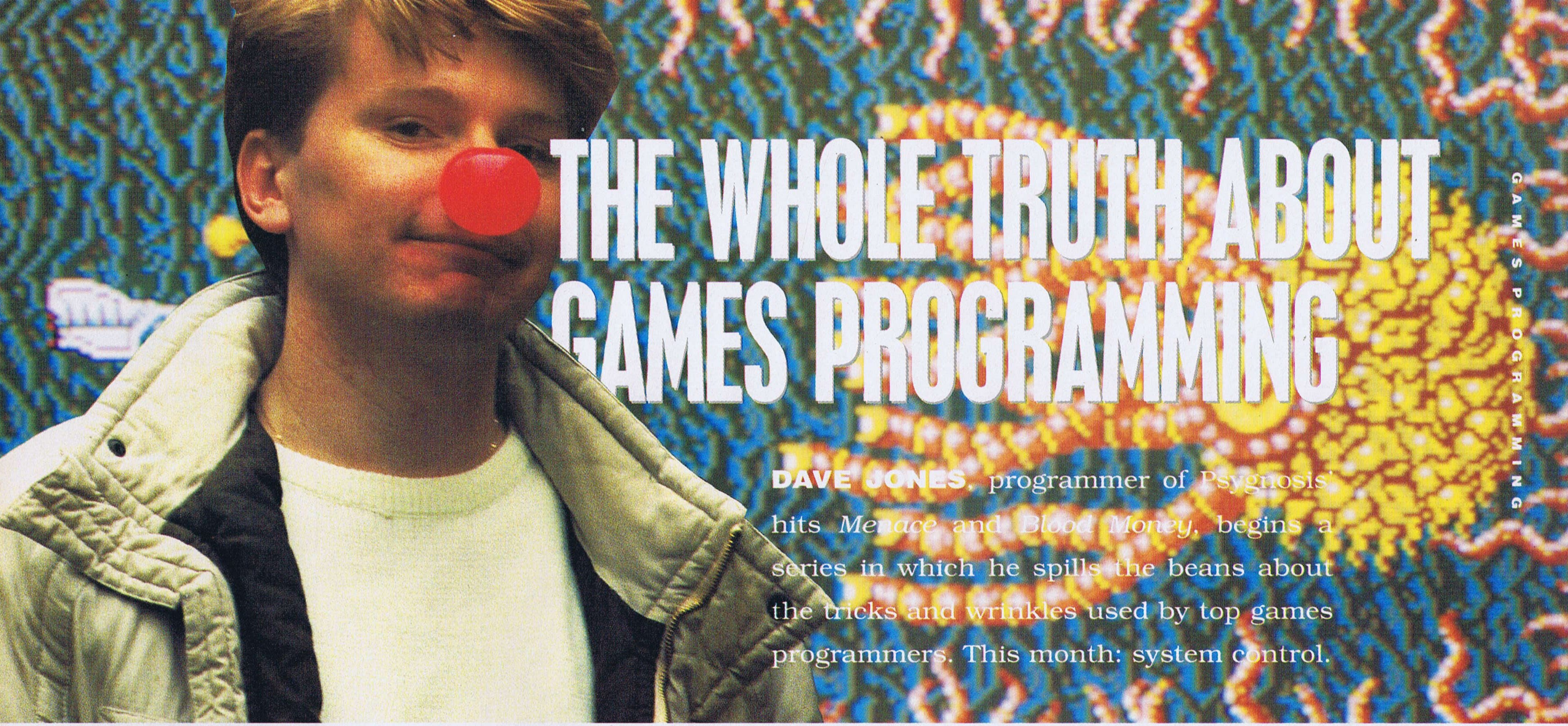
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THE WHOLE TRUTH ABOUT GAMES PROGRAMMING

DAVE JONES, programmer of Psygnosis' hits *Menace* and *Blood Money*, begins a series in which he spills the beans about the tricks and wrinkles used by top games programmers. This month: system control.

In this series, Dave Jones will not only provide the real facts about how to program a best-selling game: he also intends to back it up by supplying the source code to his first great game, *Menace*. Each month, the Coverdisk will contain a piece of source code to illustrate the particular aspect of programming which Dave is discussing that month.

Usually, source code is one of the programmer's most jealously-guarded secrets, because it contains details of the tricks the author has learnt to make his code faster and more effective than that of his rivals. Very often, sections of the code are re-employed in later programs.

Of course, *Menace* is no longer a brand-new game and a remarkable amount has been learnt about programming the Amiga since Dave wrote it: so hopefully no harm will be done to Dave's personal prospects. But much of the information in these pages will be invaluable to anyone just starting out in programming who wishes to produce a seriously viable, up-to-date and saleable Amiga game.

Remember, this is serious stuff. The code contained on the Coverdisk is 68000 machine code, so some knowledge of the relevant language will be necessary before you can get on with writing your world-beating game. To use the code, you will need to assemble it using either *Devpac* from HiSoft, with which it was written, or Argonaut's *Argasm* as demoed on this month's Coverdisk. If you are using *Argasm*, be sure to include the extra piece of conditional code written by Jason. Good luck!

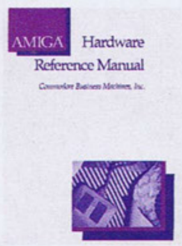
About Dave Jones...

Dave Jones is now 23 years old and lives in Dundee, Scotland. His first game, *Menace*, was released by Psygnosis in November 1988 to considerable acclaim from reviewers. It may look somewhat dated now, but many of the programming techniques it uses are extremely advanced.

Dave started work for Timex in Scotland when he left work, doing development work for the early Spectrums, a background which gave him a good insight into computer hardware. Although originally involved in writing assenmbler test programs, he ended up devising his own ingenious hardware add-ons. Currently, he is still training in Microsystems at the Dundee institute of Technology: his programming is done at night!

Although *Menace* was written entirely on the Amiga, Dave currently uses a PDS system running on a 386 PC with which to write. This system was used in the writing of *Blood Money*, the awesome follow-up to *Menace* released in May of 1989. Dave is a great fan of the Amiga and, as you will discover, certainly knows his onions from his hardware sprites...

Finally, *Amiga Format* would like to say thank you to all at DMA Design and at Psygnosis for their support and assistance with this feature series. Without whom it would not have been possible...



Welcome to a series of articles in which most aspects of games programming will be discussed in depth. More specifically, and quite naturally, it will be aimed squarely at Amiga games programming. Games are made much simpler on the Amiga by the abundance of specific hardware that the machine possesses to handle the kinds of work games require.

I will assume some knowledge of 68000 programming. There have been many articles written on this subject, and good books available, for some time now. One book that is pretty essential is the bible of Amiga games programmers, the Hardware Reference Manual.

Source Secrets

To try to discuss game programming in general is a little difficult, because there is an unlimited variety of methods & tricks that are employed by different programmers. So, to give us a bit of direction, these articles will be accompanied by the full source code to an Amiga-specific game: namely my first game, *Menace.*

Source code to games is generally kept hidden away under lock and key, because it is the culmination of many months' work on the part of the programmers and a fair bit of the source code is usually carried on to other projects. It will be invaluable to this series, and hopefully beyond it, in getting across exactly how a game is designed & written.

Each month a specific part of the game will be documented, accompanied by the source code for that section. *Menace* should be of some interest as it does make use of a lot of Amiga-specific hardware: hardware sprites, dual playfield, hardware scroll, screen splits and so on (even though the game may look a little old these days!)

Defining our Terms

Some terms that are used in games programming may cause a little confusion, so first here is a short-list and description of the main ones used by programmers.

VERTICAL BLANK or FRAME – Essentially 1/50th of a second, the time it takes for a TV or monitor to update its display. An important factor for a game is the speed it runs at. The fastest will be 50 frames per second, ie the game runs as fast as the TV or Monitor can update. This leads to the silky-smooth scrolling of some games (like *Menace,* grin!) which can only be achieved at this speed. You can scroll slower, say 25 frames per second, but this starts to introduce a slight shimmer to the graphics. It may be a surprise to learn most 3D games only run at about 10 frames per second, which shows the scope for improvement if we had very fast hardware.

RASTER/SCAN LINES – Raster lines are basically the horizontal lines produced by the monitor which are related to the vertical resolution of an Amiga screen. Most games use 200 or more lines of display. NTSC displays used in the states can display a maximum of about 220 lines. PAL systems such as ours can display about 270 lines. The Amiga is a lot more flexible than other machines as it allows us to define our own screen sizes. The NTSC system is why so many games have a large black border at the bottom of the screen: what fills our screen by two thirds will give a full screen on an NTSC system. Not many programmers go to the trouble of producing two versions due to the large number of changes needed to the game (myself included) but full marks go the programmers who do (Dino Dini with *Kick Off,* for example).

TIMINGS – One method often used to judge how fast a piece of code is taking to execute (rather than adding up all of the instruction times: no mean feat!) is to change the background colour of the display to a certain colour at the start of the piece of code, then reset it back to the original colour at the end of the code. This gives a visual colour bar fidgeting about on the screen, which is a nice indication of roughly how many raster lines the code is taking. Next time somebody says 'I can clear the screen in about 100 raster lines' you will know what they mean.

DOUBLE BUFFERING – A technique that entails using two copies of the game screen. While one is being displayed the other is being altered, moving all the aliens about for example, this cuts out all forms of 'flickering' caused by changing a screen while we are looking at it. It is quite hungry on memory due to the two screens, but is fairly essential for smooth animation.

HARDWARE/SOFTWARE SPRITES – The Amiga has the facility of displaying hardware sprites which is a very fast way of putting objects on the screen. There is no visual way to tell the difference between hardware and software sprites: software ones are drawn into the actual screen memory. Hardware sprites are a little limited on the Amiga, but can be used for speed. The main ship in *Menace* is made up of hardware sprites, but all of the aliens are software sprites. Many people refer to software sprites on the Amiga as BOBS, short for Blitter OBjectS, as they tend to be drawn using the blitter.

MASKING – When drawing graphics into the screen it is preferable to leave intact the graphics that are already there. This is done by masking, which lets all 'holes' in the graphic that we are drawing show the graphics underneath. The blitter in the Amiga is an expert at doing this for us.

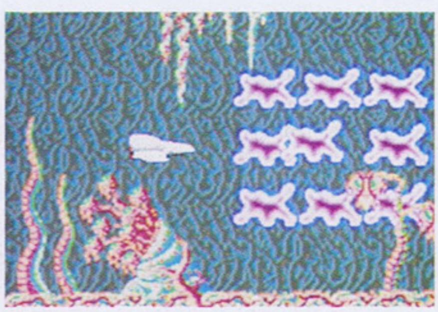
EDITOR – Not a text editor, but a piece of software that allows the editing of game data such as level maps, or alien movement patterns. These are quite time-consuming to write but save a lot of time once completed. Menace has no editors: it was the first game I had written, and all data was typed in by hand. Halfway through the game I thought "Boy, do I need an editor!" but never got round to writing one. Unless you really enjoy a lot of typing, one is strongly recommended. Even one written in another language like BASIC will suffice: but the best ones are usually integrated into the game allowing you to edit data at the press of a key.

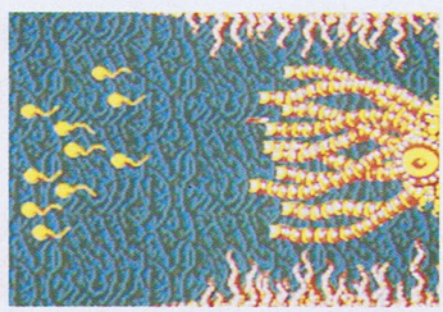
This Month's Source

The source file on the Coverdisk (framework.asm) is a small but invaluable program. Most games tend to 'bash the metal' which simply means that the operating ➧

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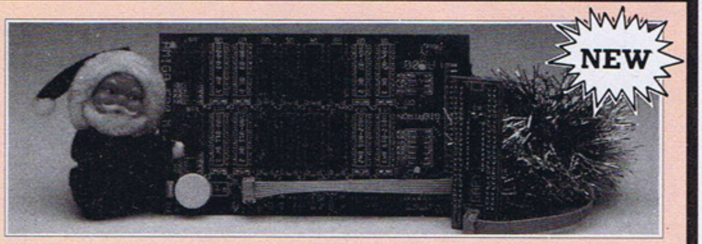
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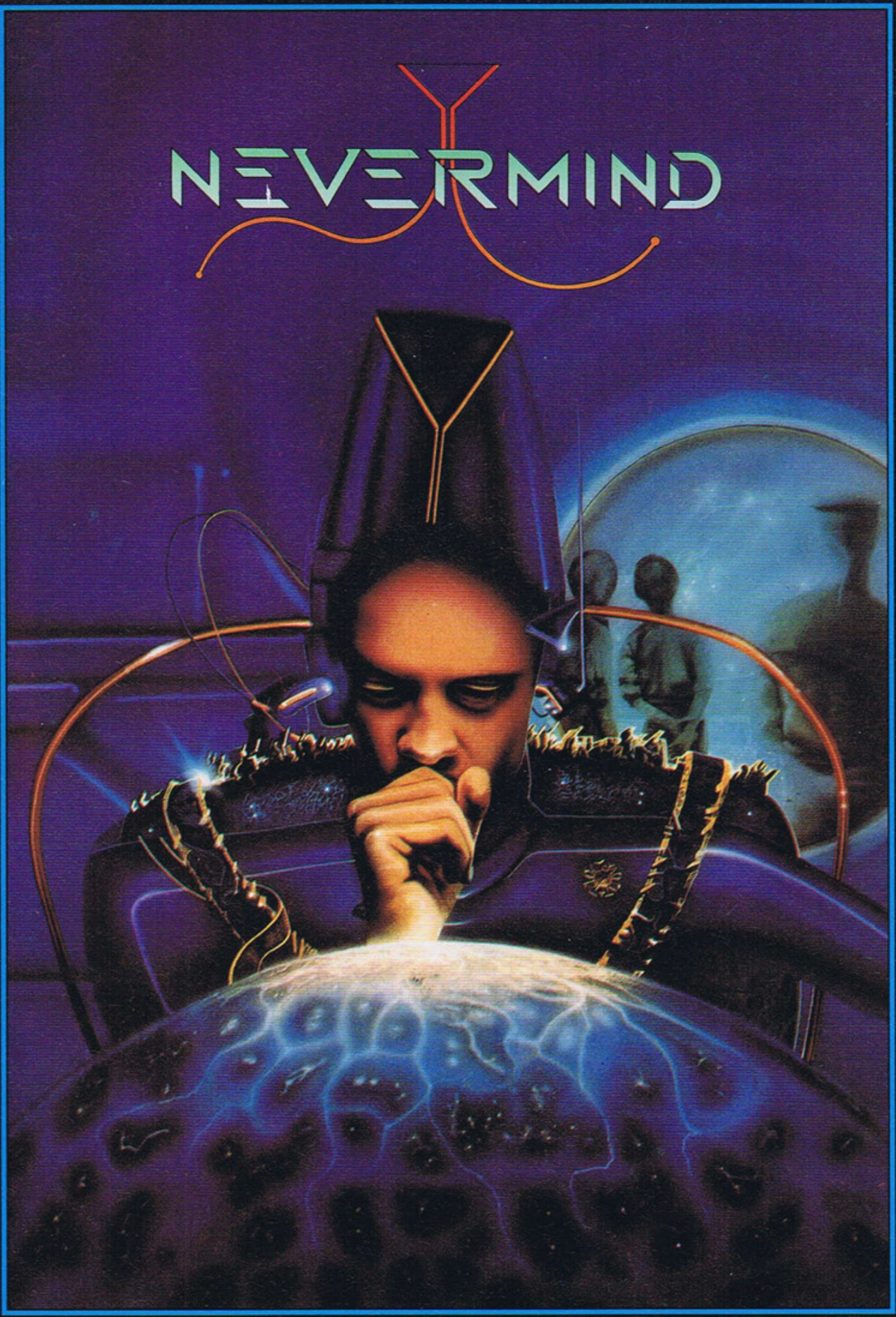
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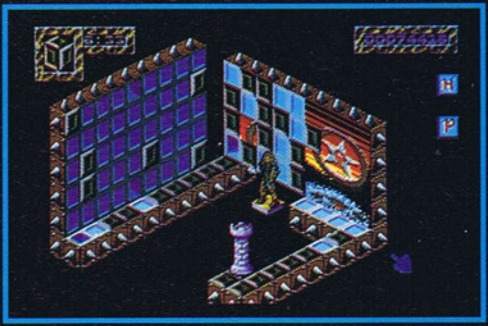
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▸ system is not used – 'trashed' – which leaves us with 512K of free memory and full control over all of the hardware. This is required near the end of writing a game when memory may be short, but it means having to reset the machine and reload the assembler and source, each time we test a program.

To get around this when trying out programs we can be nice the operating system by properly allocating some memory, using DOS to load some files, then WHACK, hit it where it hurts and take over the system. Once our program has done what it wants we revive the operating system: it has no idea what happened, so it carries on as usual.

This allows us to test virtually every aspect of a game as if it had complete control of the machine. Of course if there are bugs in the code being tested which cause a crash, a reset will have to be performed. It is always nicer to work from RAM disk but be sure to save to disk regularly. A recoverable RAM disk is very useful if you have expansion memory. ASDG produce one (VDO:) which is by far the most bomb-proof: *Menace* was completely written using this, yet it survived 99% of crashes.

Framework uses the minimum of operating system routines to get by. This is the only time in this series that operating system routines will be used, so a quick run-through of their use is in order before we delve into the more meaty hardware.

OpenLibrary/CloseLibrary

To get access to certain system routines, such as DOS loading, requires us to open an associated library, which simply returns the address of a table containing some variables and addresses of the routines to call. Framework opens the graphics library to find the address of the system copperlist (more about this later). It also opens the DOS (Disk Operating System) library to access disk routines.

AllocMem/FreeMem

An exec library routine (the exec library is always in memory) to ask

THAT MENACE SOURCE CODE...

Here is a complete listing of the source code included on this month's Coverdisk. Framework takes over and shuts down the Amiga system so that the game can do what it likes. You can type this listing in using a text editor if you so wish.

```
* Amiga system takeover framework
* 1988 Dave Jones, DMA Design

* Allows killing of system, allowing changing of all display &
* blitter hardware, restoring to normal after exiting
* Memory must still be properly allocated/deallocated upon
* entry/exit
* DOS routines for loading must be called BEFORE killing system

* Written using Devpac2

section Framework,code_c


* READ ME !!!
* The following block of conditional code is included to provide
* full compatibility with Argonaut's ArgAsm assembler system. The
* include files provided with ArgAsm are different from those on
* the Devpac program disk therefore several extra assignments have
* to be made for the code to successfully assemble under ArgAsm.
*                                                    - Jason H.

    ifd     __ArgAsm

    incdir "Include:"
    include         exec/funcdef.i
_SysBase  equ       $04
    elseif
    incdir "include/"
    endc

* END OF CONDITIONAL BLOCK

    include         libraries/dos_lib.i
    include         exec/exec_lib.i
    include         hardware/custom.i

Hardware        equ     $dff000
MemNeeded       equ     32000
SystemCopper1   equ     $26
SystemCopper2   equ     $32
PortA           equ     $bfe001
ICRA            equ     $bfed01
LeftMouse       equ     6

start  lea      GraphicsName(pc),a1   open graphics library purely
       move.l   _SysBase,a6           to find the system copper
       clr.l    d0
       jsr      _LVOOpenLibrary(a6)
       move.l   d0,GraphicsBase
       lea      DOSName(pc),a1        open the DOS library to allow
       clr.l    d0                    the loading of data before
       jsr      _LVOOpenLibrary(a6)   killing the system
       move.l   d0,DOSBase

       move.l   #MemNeeded,d0         properly allocate some chip
```

Continued on Page 68

the system for some free memory is called. Even if you multitask your assembler there should be around 200K free for testing. Framework will simply exit if not enough memory could be allocated. Only CHIP memory (the specialist hardware can only access the first 512K, termed chip memory) is allocated because virtually all data used by a game has to be accessed by the hardware.

DOS Open/Read/Close

There are no DOS routines in framework at the moment as there was no need at this stage. These will appear next month to allow us to load any file into our allocated memory. Files can also be included straight into the source with the INCBIN directive: however, this tends to make assembly time quite long. DOS routines are simple to use so we'll take this path.

The above is the full extent of the operating system routines used. The rest of Framework basically consists of two routines, TakeSystem & FreeSystem.

TakeSystem saves all the vital information about the system, namely copper list addresses, and DMA and interrupt status. The system is then stopped by disabling all interrupts and DMA channels. This frees us to set up our own values.

Between the TakeSystem & FreeSystem calls is where our code will sit until FreeSystem is called, at which point the system is revived and we will be returned to the CLI.

If you run Framework as it stands just now, not a lot will happen. The screen will blank to the background colour, the mouse pointer will disappear and the usual disk drive clicking will vanish. The system is now dead, waiting for the left mouse button to be pressed. Press the mouse button and everything will return to normal.

Note that we did not clear the screen in Framework, yet it did disappear. This is because we turned all DMA (Direct Memory Access) off. The Amiga uses DMA extensively when it requires to fetch or move memory. All the custom chips use this feature to fetch the data they need (blitter, sound, sprites etc) and we can selectively ▸







➧ turn on or off their ability to do so. DMA does tend to slow the processor down if it is being used extensively: however, this method of fetching/moving data is a lot faster and more efficient than using the processor to do the same job.

Main Game Loops

To give an idea of exactly what routines will be covered later, we will look at the 'main game loop' for Menace. All games should have a main game loop. Through the use of descriptive labels in your source this should show virtually every stage of the game as it is processed. Cue *Menace:*

```
MainLoop bsr     WaitLine223
         not.b   vcount(a5)
         beq     TwoBlanks
         bsr
Checkplayfield2
         bsr     Moveship
         bsr
CheckCollision
         bsr
EraseMissiles
         bsr     LevelsCode
         bsr
UpdateMissiles
         bsr
Drawforegrounds
         bsr     PrintScore
         bsr     CheckKeys
         bsr     CheckPath
         bra     MainLoop

TwoBlanksbsr
Checkplayfield1
         bsr
FlipBackground
         bsr     Moveship
         bsr
Restorebackgrounds
         bsr
ProcessAliens
         bsr     SaveAliens
         bsr     DrawAliens
         bra     Mainloop
```

As well as the above routines we will also need extra ones that are not used in the main game. These will be high score, initialise, text printing etc. Each routine should be as independent as possible from each other. By this I mean it should be possible to remove one of the above routines from the main loop, and still run the game: obviously with funny effects, but the game should not crash. This greatly helps when debugging a game as it nears completion.

Some of the most obscure bugs are when areas of memory may be being corrupted. With a main game loop constructed of individual routines we would successively remove individual routines until the bug vanished: this way we will at least know in which routine the bug lies. Well, at least 90% of the time!

Continued from Page 67

```
        moveq.l #2,d1                   memory for screens etc.
        jsr     _LVOAllocMem(a6)        d1 = 2, specifies chip memory
        tst.l   d0                      where screens,samples etc
        beq     MemError                must be (bottom 512K)
        move.l  d0,MemBase

        move.l  #Hardware,a6            due to constant accessing
        bsr     TakeSystem              of the hardware registers
*                                       it is better to offset
wait    btst    #LeftMouse,PortA        them from a register for
        bne     wait                    speed & memory saving(A6)

        bsr     FreeSystem

        move.l  _SysBase,a6
        move.l  MemBase,a1
        move.l  #MemNeeded,d0           free memory we took
        jsr     _LVOFreeMem(a6)
MemError move.l GraphicsBase,a1
        jsr     _LVOCloseLibrary(a6)
        move.l  DOSBase,a1              finally close the
        jsr     _LVOCloseLibrary(a6)    libraries
        clr.l   d0
        rts

TakeSystem  move.w  intenar(a6),SystemInts save system interupts
            move.w  dmaconr(a6),SystemDMA  and DMA settings
            move.w  #$7fff,intena(a6)      kill everything!
            move.w  #$7fff,dmacon(a6)
            move.b  #%01111111,ICRA        kill keyboard
            move.l  $68,Level2Vector       save interrupt vectors
            move.l  $6c,Level3Vector       as we will use our own
            rts                            keybd & vblank
* routines

FreeSystem  move.l  Level2Vector,$68       restore system vectors
            move.l  Level3Vector,$6c       and interrupts and DMA
    move.l  GraphicsBase,a1                and replace the system
    move.l  SystemCopper1(a1),Hardware+cop1lc      copper list
    move.l  SystemCopper2(a1),Hardware+cop2lc
    move.w  SystemInts,d0
    or.w    #$c000,d0
    move.w  d0,intena(a6)
    move.w  SystemDMA,d0
    or.w    #$8100,d0
    move.w  d0,dmacon(a6)
    move.b  #%10011011,ICRA                keyboard etc back on
    rts

Level2Vector dc.l   0
Level3Vector dc.l   0
SystemInts   dc.w   0
SystemDMA    dc.w   0
MemBase      dc.l   0
DOSBase      dc.l   0
GraphicsBase dc.l   0
crap         dc.b   0

    even
GraphicsName dc.b   'graphics.library',0
    even
DOSName      dc.b   'dos.library',0
    end
```

Note that the tabulation and the 'comment' asterisks may vary.

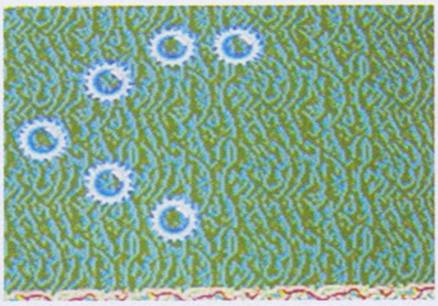
Data Structures – the essence of a game.

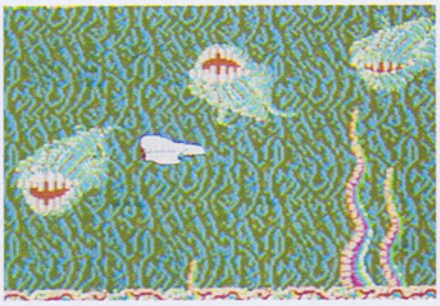
Anybody who has taken courses in programming should have had the concept of data structures hammered home to them. Designing good data structures for your game data CANNOT be over emphasised. A data structure is simply a definition of exactly what data, and in what order, is needed to describe and control a certain object.

Take for example an alien moving about the screen waiting to be blasted. The information we need on this alien may be X & Y coordinates, number of frames of animation, where it is going, how may hits to kill it, how many hits has it taken, etc etc. To write code to move each alien individually would be very wasteful of time and memory, and be very inefficient. One or two routines should be written that control every alien by working on a data structure that is common to all aliens.

Most programmers tend to work this way as it is a fairly natural way to do things. Try not to cut down on what data your structures contain in the hope of saving memory. Complete game code, with all the data structures, tends to use about 10%-15% of the available memory, the rest being used for graphics, displays, sound etc. (other games, such as 3D ones, may differ). The ProcessAliens routine from the main game loop simply processes data structures, and nothing else. This will be described in full later.

Next month will see the start of the really juicy programming bits with the source for the dual playfield scroll routine. ■







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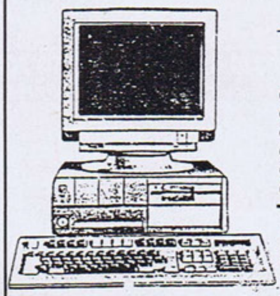
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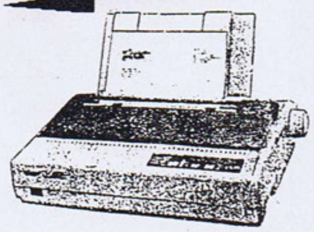


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ARGASM
Fully usable demo of this fabulously speedy assembler development kit as created, and used, by Jez San and his Argonauts. Here's your chance to see if you've got what it takes to write smash games using the fastest programming environment on the Amiga.


Master Sound

MASTER SOUND
Sound Off! Or should I say Sound On! Excititng demo of the capabilities possessed by Microdeal's superb new sound sampling system. Whatever it is you want to do with samples, you'll find plenty of features in this package to do the job.

GAME BUSTERS
Another bumper selection of cheats to help you get further in games. On this month's disk you'll find underhand gameplaying methods for *Toobin', Power Drift, Switchblade, Commando,* and *Continental Circus.*

PONTOON
Play your cards right and you might just be allowed to participate in a very simple but enjoyable game of *Pontoon (21)*. It's short, sweet and ace can be either high or low.

MED
How about this! An excellent stereo sample sequencer that will not only let you compose four-track ditties, but also lets you play them back under interrupt and from within your own programs. Tidy the samples in *Master Sound* and organise them into something resembling a tune within *MED*. You've never had it so good.

£800 UP FOR GRABS!
Don't just sit there! Get your programming tools out and earnyourself some dosh. We'll accept anything: Workbench hacks, demos, utilities, games, game cheats! Turn to Page 78 to see if you've got what it takes to write software for the *Amiga Format* Coverdisk.

BACK UP YOUR COVERDISK IMMEDIATELY
DON'T KNOW HOW? See Page 78 fast!

DISK EXTRA

The *Amiga Format* Coverdisk brings you the very best in public domain and reader software. **RICHARD MONTEIRO** takes you on a guided tour of this month's collection of binary beauties.

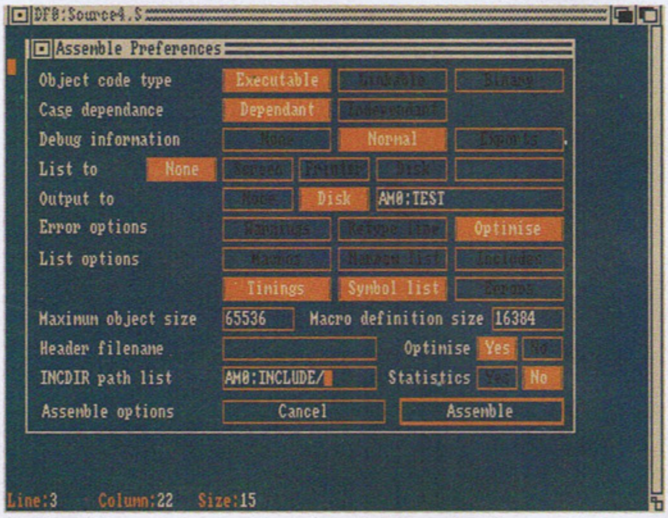
ARGASM

PROGRAM: ARGANOUT
FILES: ARGASM, ARGASM.DOC, VQMB.S, UDEMO.S

It may smack of smut, but in truth *ArgAsm* (ARGonaut ASseMbler) is a hugely powerful programming development system. It's the very system all at Argonaut use to produce stunning games like *Starglider II* and the yet-to-be-released *Hawk*.

ArgAsm is a combination editor and assembler. With it you can write assembler source – MOVE.L D5, 90000 and so on – and then compile the source to produce executable binary programs.

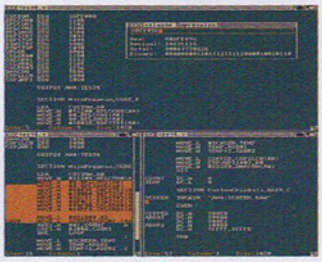
Unfortunately if you're new to the assembly game you're going to have difficulty with *ArgAsm*. Not because it's unduly complex, but because the package simply isn't aimed at the beginner. *ArgAsm* is geared for professional users.



***ArgAsm's* integrated assembler and text editor makes for very fast developing. It's possible to edit different sections (or even the same bits) of a text file at the same time using *ArgAsm's* handy windowing system.**

The usable demo has all the features of the full version minus the save option. So, as you can imagine, there's plenty to explore.

You'll notice seven menu headings in the menu bar when you launch into *ArgAsm*. All file handling takes place in the Project menu. A requestor will appear when you elect to load a file. You can either type in VQMB.S or UDEMO.S at this stage. These are a couple of demo assembly files for you play with. You'll probably want to assemble the files: go to the ArgASM menu and click on Assemble. A box packed with compiling options will appear. Unless ➧


Assembly options are plentiful which means you have full control over how a program is compiled.

you have specific needs, it's best to leave everything alone. The Maximum object size and Macro definition size will have to be altered if you've only got a 512K machine. This is done by clicking the arrow within the size gadget and typing in a new value.

From then on it's pretty much plain sailing. The editor is straightforward to use, and supports full cursor key controls.

Getting started

Argasm needs 1Mbyte of memory to be useful. And it must be run from the CLI. Inside the *ArgAsm* drawer you'll see an icon called CLI. Click on this to get going.

When you're greeted with the 1> prompt type in ARGASM and press the Return key. Nothing will happen if your machine hasn't got enough memory. If everything goes according to plan you'll be greeted by a large window calling itself ArgAsm Demo.

You're now inside *ArgAsm*. Clicking and holding the right mouse button will allow you access to the menus in the menu bar.

To return to the Workbench you must click on Quit All in the Project menu. Clicking on this option will result in you being sent to the CLI. Don't panic. Simply type in ENDCLI and press Return. The familiar Workbench screen will glide into view.

PONTOON

PROGRAM: RICHARD WILDMAN
FILES: PONTOON, PONTOON.DOC

No points for guessing what this is all about. When the program has loaded you will see two cards at the top of the screen face down and two at the bottom of the screen face up. Your cards are face up.

The objective of the game – now come on, don't tell me you don't know – is to make the value of your cards as close to 21. Go over 21 (become bust) and you immediately lose. Court or picture cards all have a value of 10. The ace can be either one or eleven – it's up to you to decide which value would be most beneficial.

MASTER SOUND

PROGRAM: 2-BIT/MICRODEAL
FILES: Mastersounddemo, Masterpic, Masterseq

Sound city! A demonstration of the powers of the software from Microdeal's forthcoming low-cost sound sampler. While the package is cheap, there's nothing cheap about *Master Sound*'s stunning editing facilities.

Samples can be subjected to all sorts of punishment: cut and paste, overlay (for echo effects), fade, volume, compression, frequency shifts. But that's just half of it.

Master Sound also comes with a sample sequencer. Up to 18 samples can be held in memory and song patterns may be made up of any of the memory-resident sounds.

Sample the delights of Microdeal's music software – you won't be disappointed. Just sit back and listen to a fabulous demo of what this piece of kit can do.

Getting started

Inside the *Master Sound* drawer you'll find a program called… wait for it… *Master Sound*. Well there's a surprise. Double-click on the program icon to run the sampling demo.



When you are sitting in front of this screen, you're ready…



…to listen to the demo tracks that show off *MS*'s capabilities.

HOTLINE 0225 765086

Between 4pm and 6pm on weekdays only.

Are you flummoxed by files? Dumfounded by disks? If you've got a problem with the disk – and you're sure the disk is in full working order – phone 0225 765086 with your query. State the model of your machine and anything you've got attached to (or plugged inside) the computer. Don't bother telling us the version of Workbench or Kickstart because Jason thinks it is silly and wastes valuable column inches. For problems with disks before Issue Five, phone *Amiga Format* direct.

Cards can only be picked up and cannot be dropped: you have the option of sticking (not picking up a card) at all times. Your adversary is the computer.

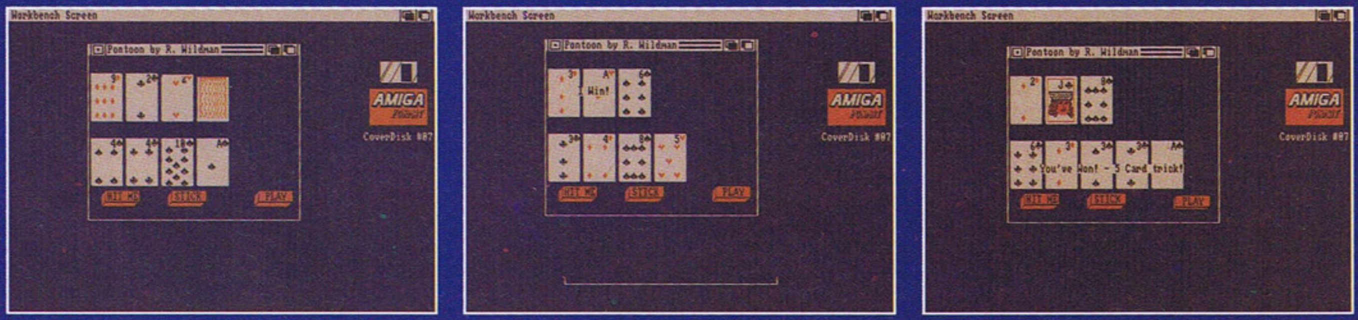
Getting started

Double-click on the *Pontoon* program icon inside the *Pontoon* drawer. The game of cards will automatically start. Click on Hit Me to pick up another card, Stick to keep with what you've got and Play to start again.

MED

PROGRAM: PUBLIC DOMAIN
FILES: MED, MED.DOC, MED_PATHS, MEDPLAYER, MEDPLAYER.DOC, EXAMPLES (folder), INSTRUMENTS (folder), PLAYER_SOURCE (folder)

You've seen – and doubtless heard – the numerous demos in the public domain boasting four-channel stereo sampled sound. Have you ever wondered how coders manage to squeeze such long sampled tracks into the computer? The trick is that only very small bits of sample are resident in memory; songs are created by playing great long sequences (or patterns) of these samples. *MED* (or *Music Editor*) is a composing tool that allows you to order samples and play the tunes



My lucky number's 21.


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▸ as a background task or from within your own programs. The results can be stunning.

MED is a sample sequencer and will use as many samples as will fit in memory at one go. Songs can be composed of some or all of the loaded samples.

In addition to being able to determine the note values of samples, it's possible to add effects, like slides, volume changes, vibrato, arpeggio and tempo, to the composition. Such is the control you have over your composition, that truly incredible pieces of music can be created. *MED* isn't far off being a commercially viable product. It's a stunner.

Along with *MED* you'll find *MEDPlayer* (which lets you replay *MED* compositions), a C source listing for adding sample sequenced songs to your program, and three demo files so that you can hear just what *MED* is capable of.

Getting started

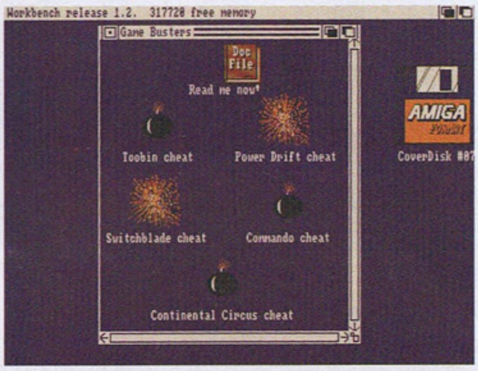
It depends very much on what you want to do. If you want to listen to the song demos provided, double click on the MED Drawer. Once inside, double-click on the EXAMPLES folder. Double-click on either SONG1, SONG2 or PORILAISTEN MARSSI to listen to a tune.

Enter the *MED* Drawer and then double-click on the *MED* program icon to run the composing tool. It's pointless going through all *MED*'s options: there are hundreds and there is a very comprehensive help file on the disk (well, several actually).

The source file and player program can also be found in the *MED* Drawer. Both are extremely well documented. ■

GAME BUSTERS

After overwhelming requests for more cheats, we employed the services of mega pokester Justin Garvanovic to come up with some really hot up-to-date hacks. And, boy, has he delivered. Just take a gander at these. All hacks can be found in the GAME BUSTERS drawer.



TOOBIN'

FILES: TOOBIN CHEAT

Ho, ho, ho! You've got the choice of infinite credits, infinite cans and infinite lives. If you can't complete with that lot there's something seriously wrong with you. When prompted, answer Y or N to the questions and then insert the original *Toobin'* game disk. Click the left mouse button to begin.

POWER DRIFT

FILES: POWER DRIFT CHEAT

Now you can finish outside the top three in this wacky racer. That should improve your chances of getting round all the courses. Insert *Power Drift* Disk A when prompted and click the left mouse button to start.

SWITCHBLADE

FILES: SWITCHBLADE CHEAT

You've got the choice of infinite lives or infinite vitality in this one. Well, you can have both, but it's not really necessary. Insert the *Switchblade* disk when asked and click the left mouse button for action.

COMMANDO

FILES: COMMANDO CHEAT

Infinite grenades and lives will ensure you get through. Just make sure you insert the correct disk when prompted. Click the left mouse button to start.

CONTINENTAL CIRCUS

FILES: CONTINENTAL CIRCUS CHEAT

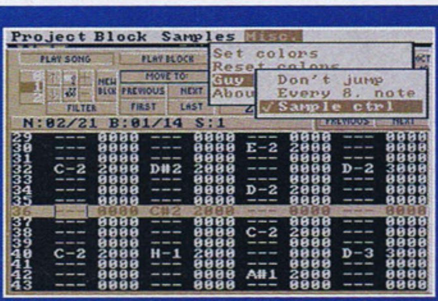
There's only one way in which you can guarantee that you'll get round the track, and that's with the timely use of this hack. Insert the *Continental Circus* disk when you are prompted for it and press the left mouse button to begin playing.

DAVE JONES SHOWS YOU HOW

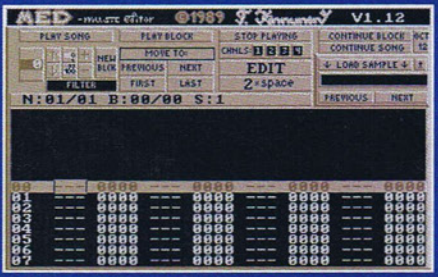
Along with a couple of demo assembly source files, you'll find FRAMEWORK1.S and FRAMEWORK1.DOC inside the ARGASM drawer. These files belong to Dave Jones' series on how to hit the Amiga hardware and get the best out of the machine.

Framework1.s is an assembler source file (compatible with HiSoft's *Devpac* and Argonaut *ArgAsm*) which shows you how to kill the operating system, play around with the blitter and copper, and then return control to the system as though nothing had happened.

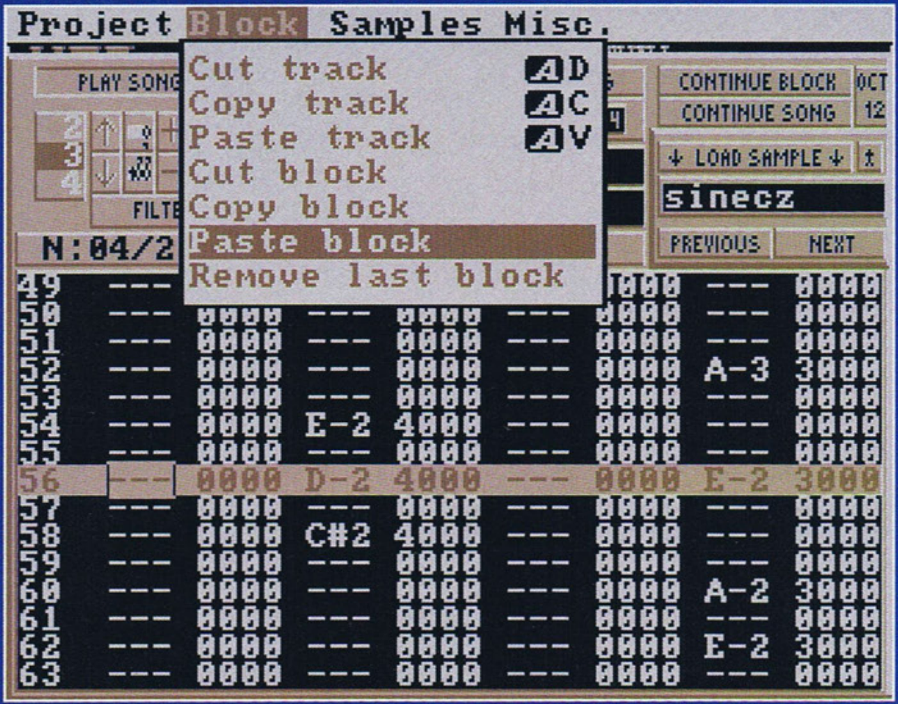
Dave Jones was more recently responsible for *Blood Money*, but this code is straight from his first hit game, *Menace:* he'll be revealing plenty of the tips and tricks he uses when programming in the forthcoming months. Be sure not to miss any instalments.



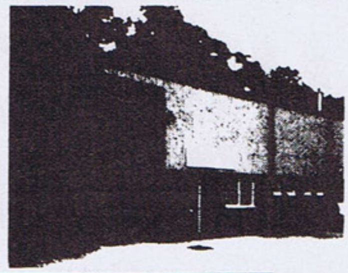
***MED*, the sample sequencer, lets you compose four-track ditties from digitised data. Eleven sorts of effects can be added to the song.**



Whenever you play a track within *MED*, a small sprite in the shape of a man jumps to the drum or bass beat. It's very strange, but novel.



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USING YOUR FORMAT DISK

Before using your *Amiga Format* disk, you should make a back-up of the master disk as soon as possible.

THIS IS VERY IMPORTANT!

BACKING UP YOUR DISK

For a number of reasons, it is rather important to make a backup copy of the Coverdisk as soon as possible. Copying the disk may sound like a complicated task suitable for techno-buffs only, but it is surprisingly simple provided you read the following instructions carefully:

1. First, turn on your machine and load Workbench. Once the Workbench screen appears and the disk-drive light goes out, remove your Workbench disk and insert our Coverdisk.

2. Next, click once on the Coverdisk icon and then press the right mouse-button and the Workbench menus will appear. Now, while keeping the right mouse-button depressed (you can cheer it up afterwards!), move the mouse pointer over to the 'Workbench' heading and a menu will drop down. Move the mouse pointer over the 'duplicate' menu option and then press the left mouse-button.

3. After a few seconds' disk access, the Workbench DiskCopy tool will be loaded and run. Now just follow the on-screen prompts and your *Amiga Format* Coverdisk will be copied to a backup disk. When the machine asks for the destination, insert your blank disk into the drive. Further instructions can be found in the user's guide that comes with your Amiga.

USING THE PROGRAMS

All the programs on the *Amiga Format* disk are specially set up to make them as easy to use as possible. If you can use the Amiga's Workbench then you can use our Coverdisk! If you do have problems with a program, full instructions on loading and using the programs are included in the Disk Pages and these should get you up and running. If you still have problems, you should read the documentation file (.DOC) that is included with every program. To run any of the programs on this month's Coverdisk, all you have to do is follow a very simple procedure. Unless specified differently within the Disk Pages, just double-click on the program's icon on the Workbench and the program will load and run. Full details on how to use the programs once they have run are included with the Disk Pages and also as a documentation (text) file accompanying the program.

To display a documentation file, just double-click on the appropriate .DOC file to be viewed and a window will open containing the file's contents. Pressing the space bar will advance a page at a time.

COPYING THE DISK

Unless specifically stated, the programs on the Coverdisk are not in the public domain and the copyright remains with the author. Selling or distributing these programs without the author's permission is against the laws of copyright.

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Approximate total size of files in kilobytes ....**K** **(we cannot use programs longer than 200K; shorter submissions, under 100K, stand the best chance of publication). It is a:**

☐ **Game** ☐ **Technical tool**
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☐ **Music program** ☐ **Educational**
☐ **Novelty** ☐ **Other**

Brief description ....

....

....

....

Checklist **(please tick):**

☐ **Stamped, addressed envelope for return**
☐ **README.DOC explanation file on disk**
☐ **Printout of README.DOC file (if possible)**
☐ **Name, address, machine type written on label**
☐ **Disk certified virus free**

IMPORTANT **Please sign this declaration:**
This program is submitted for publication by *Amiga Format*. It is wholly my own work and I agree to indemnify Future Publishing against any possible legal action should copyright problems arise.

Signed ....

Date ....

IS YOUR DISK FAULTY?

We have done our best to check that the programs on the *Amiga Format* Coverdisk are simple to use, error-free and have no known viruses. However, we cannot normally answer telephone queries on using the software, and we do not accept liability for any consequences of using the programs on the disk.

If your *Amiga Format* disk is faulty – and out of the tens of thousands duplicated, some are unfortunately bound to be – you should send it back for a free replacement within a month of the cover date to:

Amiga Format
February Disk
Discopy Labs
Unit A, West March,
London Road, Daventry
Northants NN11 4SA.

If your Amiga refuses to accept the disk, try using the DISKDOCTOR utility on your Commodore Workbench disk to rescue it before sending it off for a replacement. Full details of DiskDoctor can be found in the user's manual that came with your machine.

WARNING!

The game cheats on this month's Coverdisk are straightforward to use, but please read the instructions in the magazine, on the disk and on the public inconvenience walls. Just do it! If you screw up your game disks – or indeed, any other disk – because you failed to read any documentation, it's your fault. You're on your own. And you're getting diddly-squat from *Amiga Format*. You've been warned.

WE WANT YOUR PROGRAM

If you've got any programs for the Amiga which you think other readers would find useful, interesting or amusing, we'd like to know about them.

1. Make sure your program is foolproof to use. 2. Create a file called README.DOC on the disk which explains exactly how to use your program. 3. Fill in this form, sign it, and send it without delay to: CoverDisk Software, Amiga Format, 30 Monmouth Street, BATH BA1 2AP. You could win a share of £800 prize money for the best programs each month.

AMIGA SOUNDBLASTER



Everyone knows that the Amiga has the best sound capabilities available on any popular computer today. Unfortunately, until now, unless you could connect your Amiga to your stereo system you could not fully appreciate the quality of the sound.

The Amiga **SOUNDBLASTER** is a small stereo amplifier that comes complete with 2 high quality 20 watt 3 way speakers. It is easily connected to your Amiga and adds a new dimension to all your games.

THE AMPLIFIER

This small unit has been designed and built in the U.K. specifically for use with the Amiga. It uses the latest microchip technology to produce a hefty 2 watt per channel of high quality sound, Twin volume controls allow both volume and balance to be set and a LED indicates that the unit is in operation. The amplifier connects to the AMIGA via the two phono sockets at the rear of the computer.
Measurements:- 10cm x 7cm x 2cm.

SPEAKERS

The speakers that come complete with the **SOUNDBLASTER** are 20 watt 3 way speakers and are contained in an attractive hi-tec enclosure. The speakers sound as superb as they look thanks to a powerful 3 inch woofer for all the low tones, a 2 inch mid-range speaker for all the middle notes and a tiny 1 inch tweeter to reproduce all the top of the scale tones. The speaker connects to the amplifier via 2.5 metres of cable for each of the two speakers. Speaker measurements:- 19cm x 10cm x 13cm.

The **SOUNDBLASTER** package is completed with a mains adaptor to power the amplifier and full instructions.

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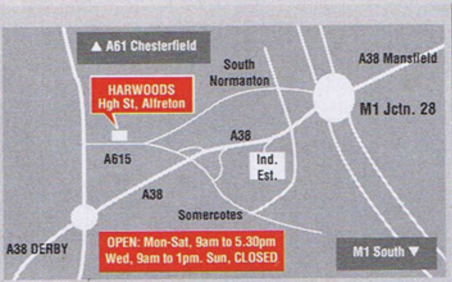


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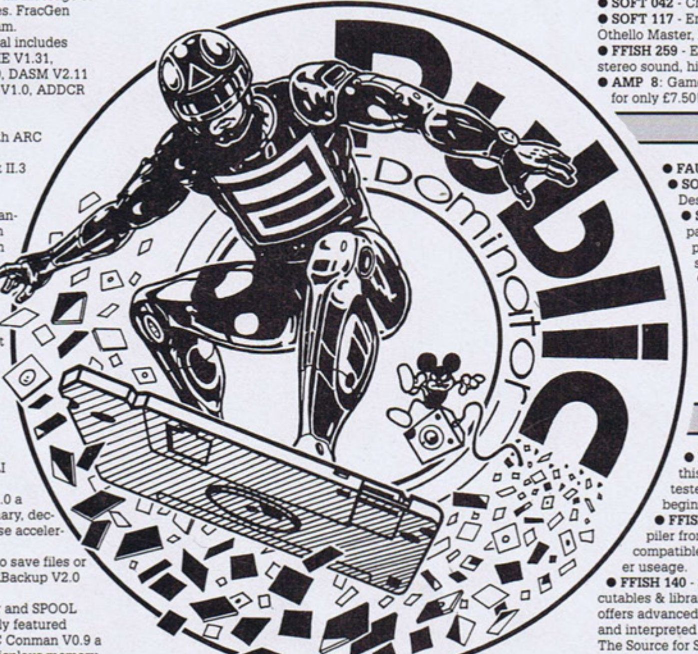
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You will need both disks @£3.00 each.
● **FAUG 41** - Rain Bench, Amiga Arc V0.2 compatible with ARC V5.0.
● **AMICUS 22** - Printer Driver Generator V2.3, Show Print II.3 IFF screen dump.
● **FFISH 158** - DiskX is a sector based disk editor, MemBoardTest V2.4, MSDOS V0.1 lists files written in standard MSDOS or ST format, then copies them to RAM then rewrites to disk in Amiga DOS format, PCBTool V2.6 is an early version of PC Board layout program that does not support printers, ScreenX is a small clock/memory counter, TaskX V2.0 is a 'realtime' task editor,.
● **FFISH 157** - XIcon V2.01 allows you to call up scripts containing CLI commands from an icon.
60or80 toggles 60/80 column text, BootBack is a disk boot block save/rewrite and copy program, ECPM is a CP/M emulator.
● **FFISH 145** - Dmouse V1.06 is a versatile program that includes screen/mouse blanker, auto window activator, mouse accelerator, popcli, pop window to front, push to back etc.
● **FFISH 131** - DFC is a disk copier that multi-tasks, Hyperbase V1.6 is a database system, Mackie is a PopCLI replacement, Micro Emacs VMg1b the text editor.
● **FFISH 130** - DirMaster V1.1 is a disk cataloguer, Hp V1.0 a nice RPN calculator which supports calculations with binary, decimal, hex float & complex numbers, Mach V1.6a the mouse accelerator.
● **FFISH 129** - DosKwik a pair of progs which allow you to save files or groups of files to one or more disks for quick loading, MRBackup V2.0 and V2.1 a hard disk back up utility.
● **FFISH 69** - Spool V1.2 : a queue manage, printer driver and SPOOL requester and Wc a file word counter. Asm68K V1.0.3 fully featured macro Assembler, Blitlab a blitter exploring program in C Conman V0.9 a sort of CLI shell, Dk decays the screen bit by bit, Frags displays memory fragmentation by listing the size of free memory blocks, Icontype changes the icon type, MonProc monitors processes for packet activity, MouseClock turns mouse pointer into a digital clock, Spew generates News of The World type headlines, Sb a sytem browser.
● **FFISH 65** - Sunmouse V1.0 automatically clicks in windows when the mouse is moved over them, RunBack starts programs from CLI allowing CLI window to close.
● **FFISH 55** - ASDG-rrd a RAM disk that survives reset, BigView displays any size IFF picture, EGraph creates graphs from X,Y pair text files. Hyperbase V1.5 a neat database management system, MemClear Zero fills free memory, NewZap V3.0 disk sector editor, Rainbow makes Workbench background a rainbow, 2 Smusplayers to play SMUS IFF music files, View a tiny IFF picture viewer, WB to JX-80 screen dump.



DiskX on disk FAUG67

● **FFISH 244** - BBChampion V3.1 the Boot Block Champion load, save and analyze boot blocks. BootIntro V1.2 you specify The headline text of upto 44 characters and the scrolling text of upto 300. FMC V1.2 is a no fast memory program. SizeChecker V1.0 uses a list of file sizes to check unexpected file changes. TextDisplay V1.52 the great text display that handles all screen formats. XColour V1.2 the screen colour setter.
● **FAUG 67** - Disk X V2.0 the sector editor, Hand Shake V1.06b a VT100 terminal emulator, Pack It a whole disk compressor.
● **FAUG 62** - Access! V2.6 very powerful telecommunications package. Hide II allows you to turn off and on your RAM expansion. Cron - runs a table of background tasks, Add Icon V1.0 adds icons to files without icons, IFF Mirrors is an ILBM slide show with X and Y mirroring, FFormat V1.a fast formattor.
● **FAUG 50** - Dir Util V VI the disk manager, Roll Back V1.0 rolls back text that has rolled off the top of the screen, Short Cut allows you to define text to a single key stroke, thus CLI commands are simplar to type.
● **FAUG 47** - FunKey assign any text string to a function key.
● **PAN 25A** - Disk Wipe very quick disk contents wiper, SELECT allows you to select in your Startup-Sequence from a number of scripts, Virus Check V1.1.
● **PAN 19D** - ZOO V1.42a a very good file compressor, Con Man V0.99b provides line editing and command line histories, Distinguish type of files with File Type, Pipe Handler, Pop CLI V3.0.
● **PAN 17B** - AmiGazer 1573 stars to view any time, date or lattitude CLI only, Date Book the diary, bind any text string to a function key, use CLI from a menu, a disk cataloguer Lightning Logger V1.2.
● **APDC 18** - Floppy Disk Utils: Quick Copy V1.0, Disk Mapper, Disk Salvage, Virus check, System Utils: Blitz V1.0 text editor, TimeSet, ACalc calculator Amiga Monitor V1.1, MeM Grab fast memory grabber. DirectoryMaster V1.1
● **APDC 15** - Icon utilities: full of icon files and creators. Some animated! Brilliant disk for icon manipulation.
● **AMICUS 24** - Sectorama - disk sector utility, Iconize V1.0 reduce a full screen pic to an icon, BMon system browser, Virus Check v2.21 checks disk & memory, Boing Machine.



DEMO DISKS

● **PDOM82** - Batman Remix demo. Sampled sounds of Prince's BATMAN.
● **PDOM83** - Space ACE Demo an excellent demo of the game with fabulous animation and incredible sampled sounds!
● **PDOM 65** - Red Sector Mega Demo. THE best demo on the Amiga! A mega good demo that requires disk PDOM 66, but you only need 1 drive. Amazing graphics, fabulous sounds, astounding vector graphics!!!!!!!!!!
● **PDOM 66** - See PDOM 65 for details.
● **FFISH 196** - Stunning digitised HAM pictures. Excellent! The quality is astounding.
● **PDOM 01** - The Walker Demo I is a mega animation demo that requires 1Mb RAM.
● **PDOM 02** - The Walker Demo II the mega mega animation demo that requires 1Mb RAM.
● **PDOM 06** - The Mahoney and Haktus sounds of the knome music disk II, great graphics and mega sounds. With a bouncy mouse pointer and things flying evrywhere. A really good demo with loads going on.
● **PDOM 40** - Northstar Fair Light mega demo III a 2 disk set of incredible demos! Needs PDOM40 and PDOM41. Including Mahoney and Kaktus with Blue.
● **PDOM 41** - See PDOM 40 for details.
● **PDOM 42** - DeathStar Blasting II - Enlightment demo a 2 disk set of mega mega good demos. Needs disk PDOM 43.
● **PDOM 43** - See PDOM 42 for details.
● **PDOM 44** - The Walker demo. This is the original 2Mb RAM, 2 Disk version. It is absolutely stunning! The 1Mb RAM version is on PDOM1. Also needs PDOM 45.
● **PDOM 45** - See PDOM 44 for details.
● **PDOM 67** - IPEC UK demo Disk 10 includes: Nice Scroller, Sunriders, 178 Bobluni and others.
● **PDOM 68** - Rebels Mega Competition demo includes: Pirazy, Nabob, Subway, Smiley, Aloha and Sin o'Delic.
● **PDOM 69** - HighClass UK compilation: Triangle, New BS1, Zoom First, W.O.W., RAF First, Spreadpoint, Subway/TNT and others.
● **PDOM 70** - Rebels demo: Nabob, Clones Demtro, Sunriders, Bloodsuckers, Flash and Vision Factory.
● **PDOM 73** - AGAtron Special disk 10: Star Trek Dry Dock Demo. Excellent! Mega! Brilliant! Prefers 1Mb RAM, but you will get part of the demo on a 1/2Mb RAM.
● **PDOM 74** - Star Trek the Starship Enterprise flying around in a circle.
● **PDOM 76** - Agatron Animation 14: Star Trek Shuttle landing on the SS Enterprise. Prefers 1Mb RAM, but you'll get part of it on 1/2Mb RAM.

GAME DISKS

● **PDOM79,** # PDOM80 and # PDOM81 the StarTrek game! An amazing 3 disk fully working amazing graphics game!
● **FFISH 194** - Moria V3.0 the single player dungeon simulation adventure game. Requires 1Mb RAM.
● **FFISH 205** - Bally the arcade game, Battle Force V3.01 simulated battle between 2 robots. Chess V2.0.
● **SOFT 042** - Chinese Checkers excellent version.
● **SOFT 068** - Clue as in Cluedo, Othello, Klondike, Canfield and Cribbge.
● **SOFT 069** - Backgammon, Yahzee, TVision, Missle Command, Cosmo 2 and 3D Breakout.
● **SOFT 117** - Empire, Gravity Wars, Hanoi, Hockey, Bikoff, Jackland, Othello Master, Pacman, all brilliant PD games.
● **SD 21** - Monopoly.
● **SOFT 078** - Pac Man. Great implementation of the classic game.
● **SOFT 118** - Amoeba Attack, Lander, Gravity Attack, World text adventure and Bullrun a battle simulation.
● **PAN 29B** - Amoeba space invaders, CosmoRoids, Stone Age a Boulder Dash type, BackGammon, Chain Reaction, Master Mind, Reversi, Black Jack, Crazy Eights, Klondike, Jig Saw, Keno, YachtC, Daleks and Ratmaze.
● **SOFT 042** - Chinese Checkers excellent version.
● **SOFT 117** - Empire, Gravity Wars, Hanoi, Hockey, Bikoff, Jackland, Othello Master, Pacman, all brilliant PD games.
● **FFISH 259** - Escape From Jovi a fast action mega graphics games with stereo sound, hi res scrolling etc.
● **AMP 8**: Game Pack: 3 disks SOF68, SOF69 and SOF117. A 3 disk pack for only £7.50!

GRAPHICS DISKS

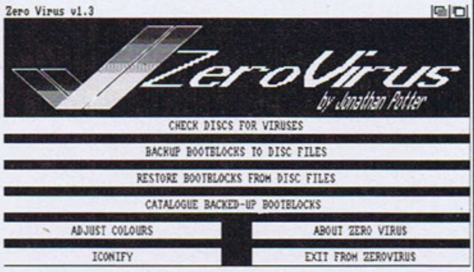
● **FAUG 42** - DBW Render a very good Ray Tracing utility.
● **SOFT 123** - Amiga MCAD V1.2.2 excellent Computer Aided Design package.
● **SOFT 022** - Disk Full of graphic utilities: Clip It! clip any part of the screen and save to disk, Filter Pics manipulate pictures with enhancers, edge definition, colour and size shifters, plus loads of excellent packages
● **SOFT 013** - Mandelbrot Explorer. Excellent full features mandelbrot designer.
● **APDC 13** - VDraw V1.19 brilliant painting program, Ray Tracer Generator, MCAD V1.2 an object-orientated drawing package, IFF to pieces jigsaw program, ROT 3D drawing program.
● **AMP 3**: Graphics Pack: 3 disks SOF123, SOF22 and APDC13. A 3 disk pack for only £7.50!

LANGUAGE DISKS

● **FFISH 171** - Sobozon C a port of the Atari ST version of this full K&R C compiler, assembler and linker. If has been tested on an A2000 and appears to work well. Not for the beginner due to lack of disk info.
● **FFISH 193** - Zc V1.01 modified version of the Sobozon c compiler from disk FFish 171. It now generates code compatible with A68k assembler and has a front end to allow easier useage.
● **FFISH 140** - Stoney Brook PROLOG v2.3.2, This disk contains the executables & libraries, In addition to providing a compiler SB-Prolog also offers advanced features such as dynamic loading, mixing of compiled and interpreted code, macros, extension tables & a debugging facility. The Source for SB prolog is contained on FFISH 140, but this is not needed to operate FFISH 140. SB PROLOG requires 1Mb of RAM.
● **FFISH 91** - The Adventure Definition Language (ADL).
● **FFISH 201 and FFish 77** - Draco V1.2 is a compiled - structured language reminiscent of both C & Pascal. A full interface to AmigaDOS & Intuition is supplied. Be sure to get both FFish 201 AND FFish 77 @ £3.00.
● **APDC 25** - Logo, XLisp, Modular 2, MVP Forth.
● **PDOM 60** - Modula II compiler. Apparently fully working, complete and ready to use version with on disk documentation and examples.

MUSIC DISKS

● **AMP 11:** Sonix Music Pack. Includes the PD player for Aegis Sonix music program and 4 disks full of music scores. A 5 disk pack for only £12.50!



Zero Virus on disk PDOM62

Most of the disks in this advert actually contain more files than is listed, The ad also only shows a small portion of our catalogue, we have in stock TBAG, AMUSE,APDC, FAUG, Panorama, Amicus, Slipped Disk, The latest Fred Fish (upto disk 260) and our own PDOM collection. so for details of the service and a free copy of the 48 page bumper catalogue send a Stamped S.A.E.
(If you are ordering you will get the latest catalogue).
Disk Prices: 1 to 5 disks are £3.00 each, 6 to 10 disks are £2.75 each and 11 or more disks are only £2.50 each!

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Excellent quality blank disks including labels: 10-£7.00, 50-£33.00, 100-£61.00.
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VISA

Access

TOP TEN PD

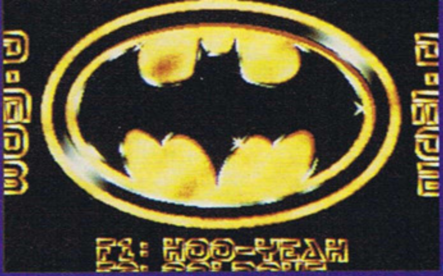
GTS Titles

1 HOME BUSINESS PACK
2 FOX VALLEY 38
3 MEGA GAMES II
4 HAM RADIO SPECIAL
5 FISH 215
6 FISH 183
7 STAR TREK
8 BLIZZARD
9 TV GRAPHICS
10 TENNIS

TOP TEN DEMOS

17Bit Disk Numbers

1 SPACE ACD DEMO (514)
2 RED SECTOR DEMO (503/504)
3 PUGGS IN SPACE (515)
4 JOE SLIDESHOW (502)
5 WALKMAN MUSIC (499)
6 GMC (482)
7 TV SPORTS BASKET BALL (530)
8 SHOWERING GIRLS (474)
9 BILBO MUSIC (506)
10 ENEMIES MUSIC (473)



D MOD Disk 1, on Deeper Domain 85. An incredible selection of house mixes including Hoo-Yeah, Coldcut, Batmix and a bonus!

PD UPDATE

For little more than the price of a disk, you can fill your software collection with some of the finest utilities and demos from the Public Domain, as **RICHARD MONTEIRO** finds...

BLIZZARD
GTS

PD games have come a long, long way since the early Amiga days. *Blizzard* is good enough to be released as a budget 16-bit game. It's a very fast vertically-scrolling shoot-em-up. You won't be able to put your joystick down.

PD SPECTACULAR 1
GTS

You'll find 44 of the very best PD and shareware programs on this disk. Because there are so many wonderful items on the disk, only a selection will be mentioned here:

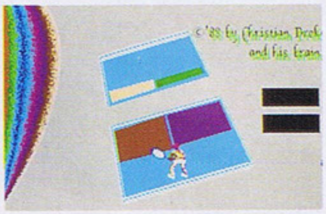
BROWSER – An alternative to the standard Amiga Workbench and CLI which lets you run, move, copy, delete or rename any program on an Amiga disk.

DIR – Not the AmigaDOS version, but an improved version that takes up less space on disk and is substantially faster. Files aren't sorted, but drawers are shown in a different colour.

HERMES' HERMIT – With this you can save and cycle the screen by using hot keys. Even overscan screens can be grabbed. Files are saved to a path specified by you.



Capture IFF screens with ease, with *Hermes' Hermit.*



Balls! Balls! ...new balls please. Play tennis with... er... *Tennis.*

JAM EDITOR – Most text editors require you to learn a complex set of keyboard controls. Not JED: it is totally user-configurable. Features include backup file creation, macros, cut and paste, and even an on-line help facility.

STRIPES – A very handy utility for adding fancy copper lists to your boot disks. if you want umpteen shades on screen then look no further than this.

SWEEP – The Amiga tends to use memory and not give it back. This utility makes quite sure that any RAM no longer being used is returned to the system.

WB DEPTH – This program simply changes the number of bitplanes allowed on the WB. This means you can make use of more than the standard four colours on the Workbench screen display.

WBSHADOW
Fish Disk 253

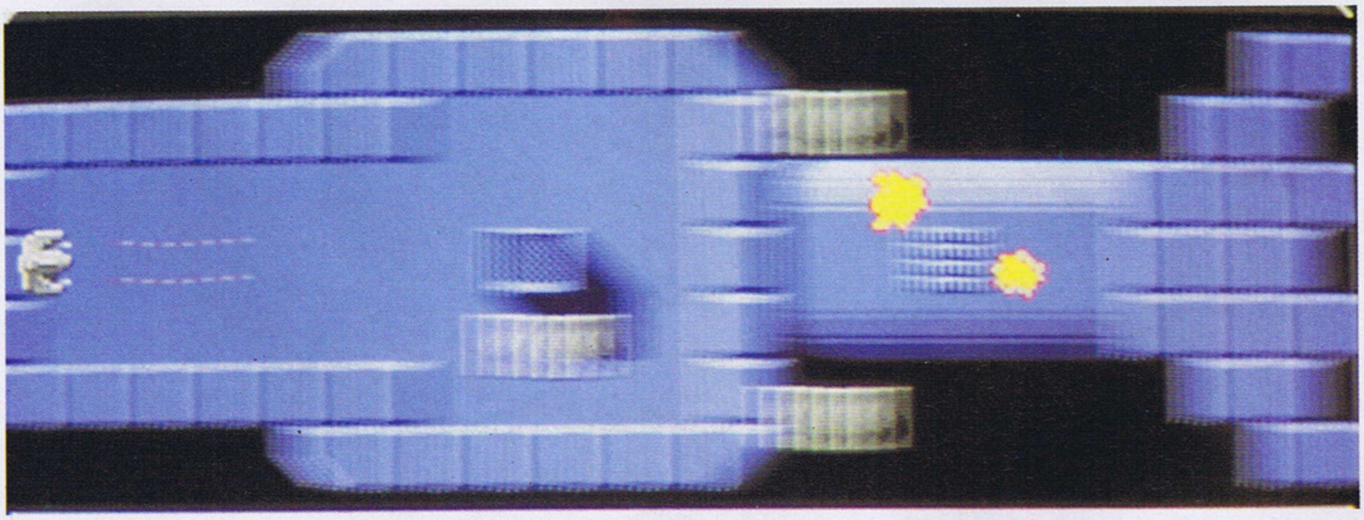
Completely useless, but a fun Workbench hack nonetheless. *WBShadow* creates a shadow for everything displayed on the Workbench screen. You name it – windows, icons, gadgets, menus, text – and *WBShadow* will happily put a shadow behind it.

TENNIS
GTS

Yet another good PD game worth getting hold of. *Tennis,* as if you couldn't guess, is much like *Passing Shot:* that is, it's a tennis simulator. There are two play modes: training (versus the computer) and two player (against another joystick jockey).

Moving the joystick moves your player and pressing fire when a ball approaches allows you to swipe with the racquet. Several shots are catered for including slice, overhead and volley. It's a ▶

(Below) **The fast and furious shoot-em-up that's also free.**



⧫ very playable game... provided you've got 1Mbyte of memory. Otherwise you get nothing at all.

TBAG DISK OF THE MONTH 33
GTS

Here's one of the latest disks to filter across from the Tampa Bay Amiga Group in the States. And, as ever, it's packed with goodies.

MYMENU – Allows you to create menus within Workbench and run sequences of commands. You can execute both Workbench and CLI commands from within the program. Until Workbench 1.4 comes along, *MyMenu* is the easiest and best way of running complex sets of Workbench commands.

ICONMEISTER – As featured on *Amiga Format*'s second Coverdisk. *Iconmeister* replaces *IconEd*, letting you design icons of all types, sizes and colours. You can even create interlaced and eight-colour icons. Twice the features of *IconEd* in the same space.

SYSCHECK – Checks that you've got the latest systems files on your boot disk. In your rush to update from 1.2 to 1.3 you may have missed something. There's no harm in playing safe.



SETPATCH – Commodore's bug fix for RAD disk in AmigaDOS.

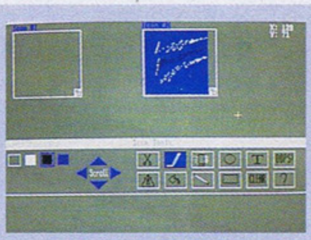
DSD – *Disk Storage Deluxe* will open its own window and display all currently mounted devices. It also shows how much of the devices storage medium is used up and how much is left.

ABORT COMMAND – You can regain control of runaway programs and even recover from those fearful software errors with this extremely handy utility.

DITHER DEMO – Dithering is a technique used to fool the eye into thinking that it's seeing more colours than are actually present. This demo simply shows how nine seemingly different colours can be produced from just two bit planes.

SMALL ALARM – A better clock than the effort supplied on your Amiga system disk. This one lets enables you to set an alarm for several different times in the day.





Left: **The infamous *Iconmeister*, as spotted on TBAG DOM 33.** Right: **Also on the TBAG disk is this marvellous airborne graphic.**

BREAKOUT CONSTRUCTION
GTS

No prizes for guessing what this is all about. Along with a 50-level clone of *Breakout*, *Arkanoid*, *Giganoid* or what you will, you get a terrific level editor. You can edit any of the supplied levels or create your own from scratch.

The game is obvious enough: destroy bricks by hitting a ball with a bat. Special bricks are present which conspire to make the game even more interesting.

- Jumper bricks transport the ball to another location.
- Slow bricks, surprisingly enough, retard the ball's speed.
- Twin bats give you two bats, one on top of the other, to play with.
- Dropper bricks grab the ball and send it hurtling to the bottom of the screen. Very nasty.
- Invisible bricks can't be seen.
- Grabber bricks pinch the ball and make it stick to the bat.
- X2 bricks double the score for every subsequent brick hit.
- Destroyer bricks make your ball ram straight though lines of bricks. Powerful stuff, huh?

FISH DISK 260

Three superb solitaire-like card games for you to while away the hours with. In *Accordian* the object is to condense all the cards into one pile. The cards are dealt face up, one at a time, from left to right. Piles are built by moving a card or pile from the left onto a card or pile to the right.

In *Calculation*, the second of the card games, it's necessary to stack the cards into four ordered piles. The first pile only accepts cards in jumps of one; the second pile accepts cards in steps of two; the third pile accepts cards in jumps of three; the fourth pile accepts cards in leaps of four.

Finally, *Sea Heaven* requires you to separate the deck into its four suits. Each suit must be ordered from ace to king.

All games are very slick graphically and gameplay-wise. The games, as they stand, are pretty tough, so you'll be pleased to know that you can bend the rules to suit your level of play.

AMIZIP
Fox Valley Disk 38

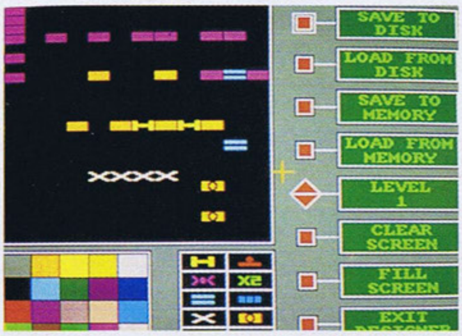
A new file archiving method called *Zip*. It's far superior to other file archivers, and looks set to become the new standard.

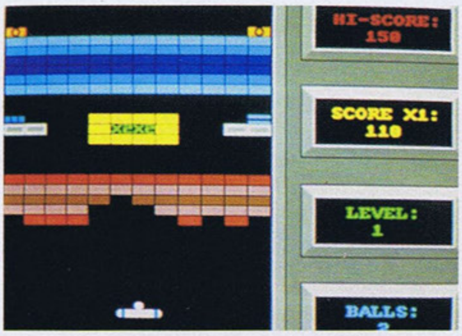
RETURN TO EARTH
GTS

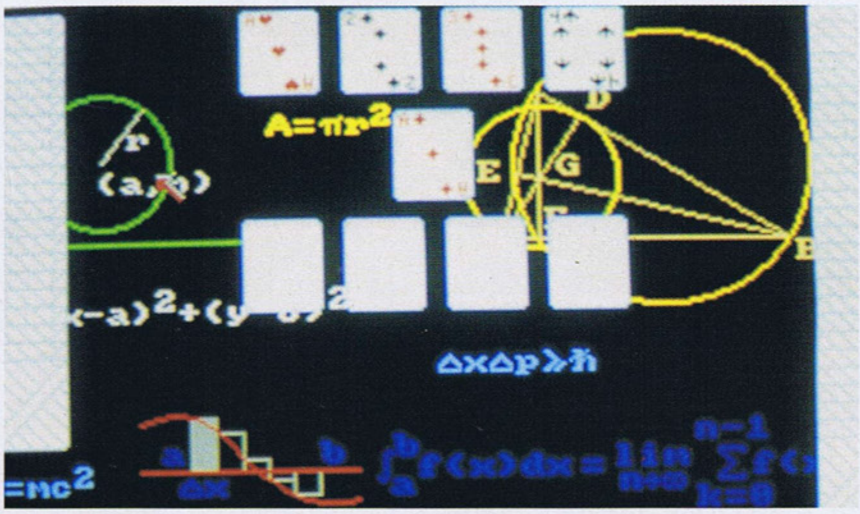
Long ago humans and robots left Earth in their droves to colonise new planets and explore the Universe. After setting up a galactic empire, which lasted some 20,000 years, envy brought the mighty empire crashing down.

Some 500 years later you, Golan Trevize, leader of a small planet called Terminus, decide to look for mankind's cradle: the planet Earth. By this time Earth is no more than a legend. It's on Terminus that you collect your gear and prepare your karma in readiness for the epic journey.

If you've played and enjoyed *Elite*, you're going to go crazy for this. There's the whole Universe to explore and countless numbers of aliens – some friendly and some not – to trade with or destroy.







Above Left: **Game creation in progress in the level editing screen of *Breakout Construction Set*, from George Thomson.** Left: **Thwack, blap, smack, dack, blap... a game of *Breakout* in full swing. Don't drop that ball!** Above: **Thank goodness you can cheat in the *Calculation* card game – you wouldn't have a hope of winning otherwise!**

DEMOS CORNER

Want to see what your Amiga is really capable of?

FORGOTTEN REALMS SLIDESHOW
Deeper Domain 86

Fraxion have put together a spectacular collection of HAM digitised pictures from the Forgotten Worlds fantasy art book. The images do look absolutely stunning, and the music that plays in the background is remarkably good too.

DD COMPILATION 1
Deeper Domain 87

Gary Fenton of the Deeper Domain has put together a compilation of some of the best Amiga demos available. Included on the disk are the Gate Megademo Part 5, Kefrens, Mafia Demo, Phenomena Let's Go, Phenomena Playfields, Red Sector Intro and Vector IV. And for good measure you'll find the Pseudo-Ops Virus Killer V2.

GATE MEGADEMO – Multiple-line scroller with fantastic flute music playing in the background.

KEFRENS – Multi-plane scrolling starfields, rotating balls and supporting background tune.

MAFIA DEMO – A couple of evil-looking smiley faces twist around the screen to a driving beat.

LET'S GO – Without doubt this is one of the best demos you'll ever see. Huge lettering, containing fantasy action sequences and making up the word Phenomena, scrolls from left to right while objects and messages dance around the screen. A haunting tune plays in the background. Get this demo!

PLAYFIELDS – You won't believe the size of the helicopter being moved around the screen. It's absolutely phenomenal.

RED SECTOR INTRO – There are copper lists and there are copper lists. This one is totally outrageous. Waves of colour jump up and down the screen and all the while a great tune sounds out.

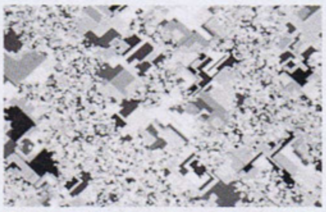
VECTOR IV – Fast-moving display of solid 3D vector graphics.



Zee parades his own musical explorations.

BLIT DEMONS
Fish Disk 256

This program is based on cellular automation (known as demons) described in the August 1989 edition of Scientific American.



Wait patiently a while to discover the full force of demons.

The algorithm for demons, in case you missed the article (cough), is as follows. Each pixel on the screen represents a cell. A cell may have any one of 16 values (colours). At the start each cell is set to a random value. For each generation, if a cell has a value that is one less than any of its four orthogonal neighbours, the cell is set to the value of its neighbour. The values wrap round so that value 0 is considered to be one more than the value 15.

There are four distinct generation phases. The first stage is the debris phase and is characterised by the random garbage present at the start. The second phase is the droplet phase in which waves of colour wash back and forth across droplets. The third stage is the defect stage. It is characterised by a few isolated spirals. The spirals that survive are called demons, and they inhibit the final steady-state phase.

So much for the theory, seeing the final image being built up is actually quite fascinating.

FISH DISK 268

This disk contains three entries to the 1989 BADGE Killer demo contest. Doctor A is Marvin Landis' entry. It's an animation sequence in which Amiguy takes to the basketball court with the BoingBall. Designed and rendered in *Sculpt 4D*, the demo looks superb.

Next comes Klide, a line art demo. It impressively generates complex patterns at the rate of 15,000 lines per second. Wow! Only the blitter makes it possible. Finally there's Rob Peck's entry, Only Amiga. Sampled sounds, pretty pictures and bouncing balls – what more could you want?

ZEE'S HIP HOP DISK 1
17Bit 531

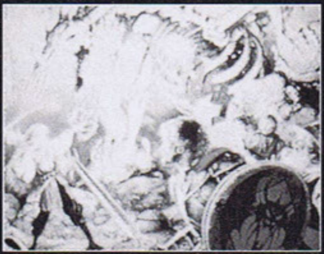
Get down to where the beat's at. Yo, are you listenin'. Come on babe this is where the party's at.

Hip-hoppers, take a look at Zee's first music demo disk. It contains the tracks Hip-House, Lethal, Tek-Na, Funky Kid, Pick Up and Rebel. Zee compiled the disk because he got fed up listening to Soundtracker House mixes. Rather than just whingeing he got down to creating his own mixes. The moral of the story is there's hope for everyone one presumes.

SUPPLIERS

The following companies are responsible for the distribution of Amiga Public Domain software in this country. For their full address check out the advertisements in this issue of *Amiga Format*, or give them a ring on these numbers.

George Thomson: 0770 82234, 17 Bit Software: 0924 366982, Softville PD: 0705 266509, Amiga PD Library: 0742 588429, Purple PD: 0279 757692, Ray Burt Frost: 0703 785680, Blitsoft PD: No phone number available (apologies for printing a spurious one previously), Senlac PD: 0424 753070: Deeper Domain 01 204 3954, Crazy Joe's: 0709 829286, EMPDL: 0602 630071, JTS PD 0937 63834.



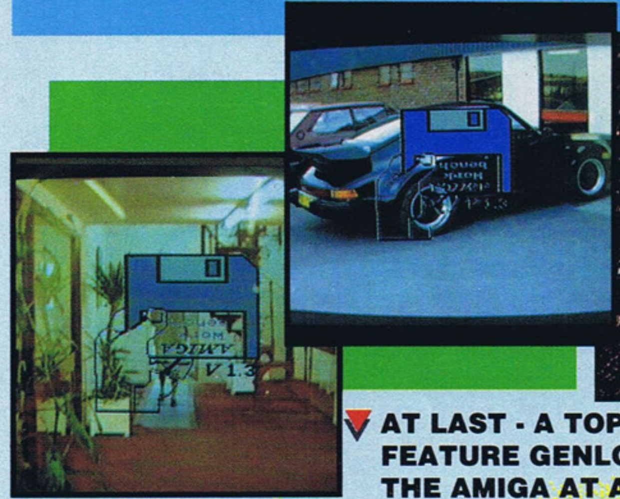



Just a small selection of the many HAM digitised pictures from the Forgotten World picture book.

DATEL ELECTRONICS

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AT LAST - A TOP QUALITY, FULL FEATURE GENLOCK INTERFACE FOR THE AMIGA AT A REALISTIC PRICE.

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- A unique product to edit and produce your own individual icons.
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- Advanced editing facilities make for fast and easy design.

ONLY £12.99

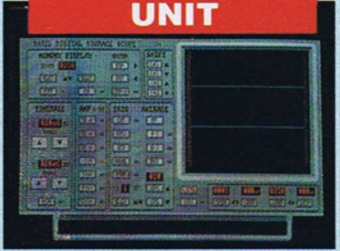


A590 UPGRADES

- If you own an A590 hard drive, then you can upgrade it to give up to an extra 2 Megs of Ram to your system.

ONLY £69.99 FOR 512K (0.5 MEG)
ONLY £134.99 FOR 1 MEG.
ONLY £259.99 FOR 2 MEGS

DATA ACQUISITION UNIT

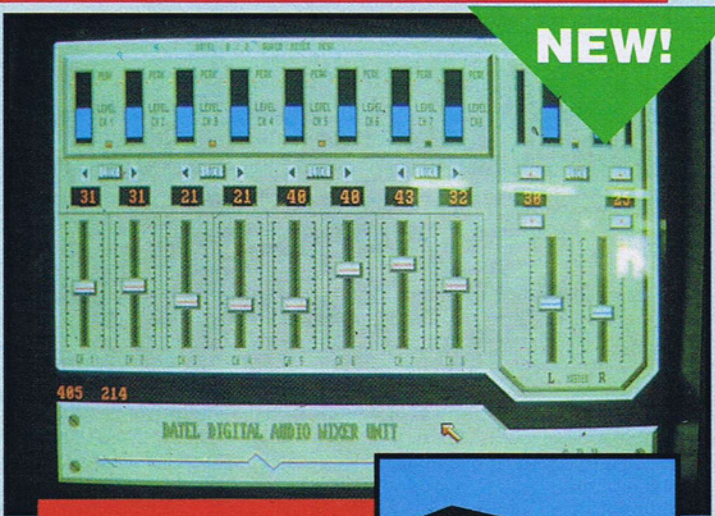


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DIGITAL SCOPE DISPLAY - 2 channel inputs.Manual or continuos display.
Timebase 500ms/div to 20us/div-accurate to 5%.
6 bit flash conversion gives 2 million samples/sec.
PLOTTER DISPLAY
Timebase range 1 sec to 10hrs per plot.

ONLY £99.99
PLEASE STATE A500/1000/2000

NEW!



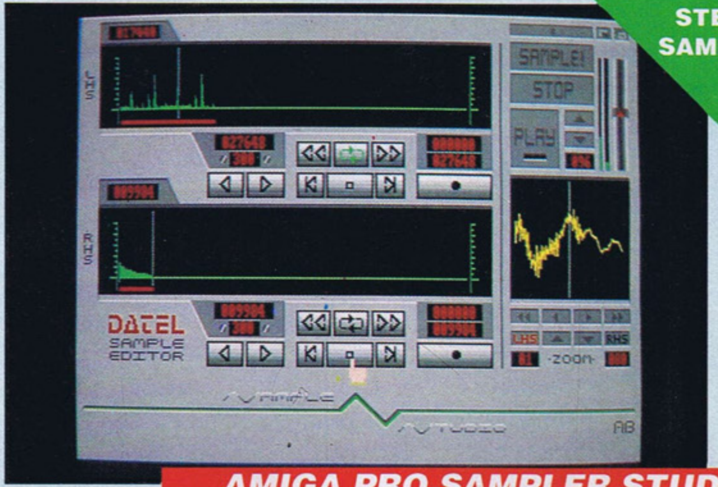
8 CHANNEL DIGITAL MIXER



- Now an 8 channel digitally controlled mixer for under £100.00!!
- This system comes in two parts - a 19" rack mounting mixer - and a superb control program. Use your Amiga to give top quality 8 channel "digital" mixing.
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- Control software gives 8 faders with super-fine increments, digital display of levels on each channel, stereo lock for each pair of faders.
- Master faders with bar graph display of output levels. Suitable for mono and stereo applications.
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- Top quality analogue and digital circuits give superb results.
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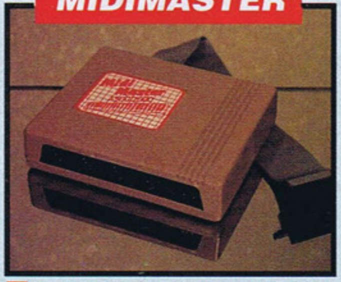
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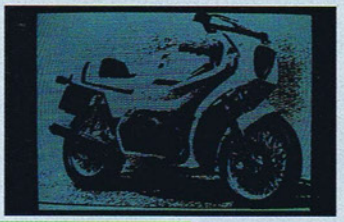


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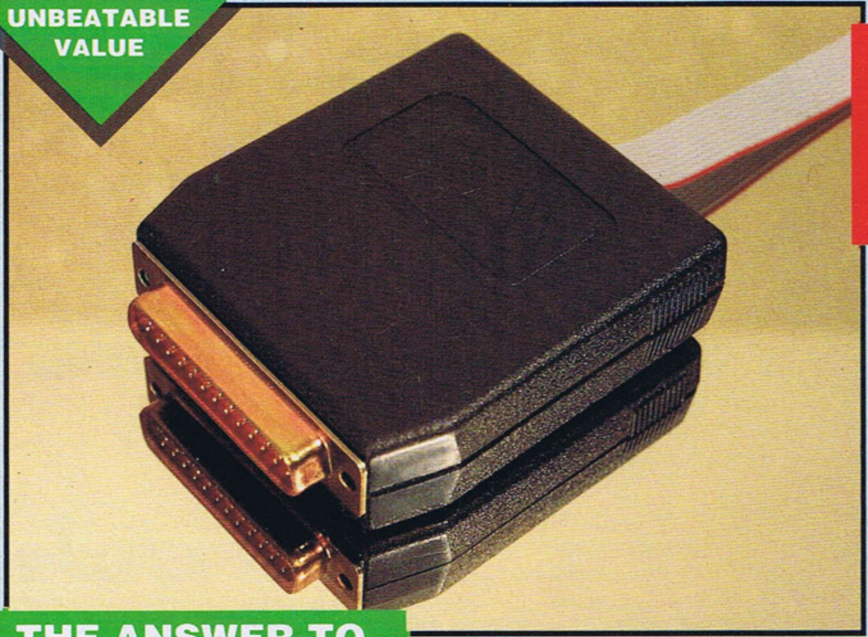
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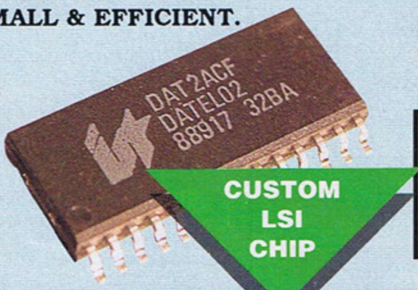


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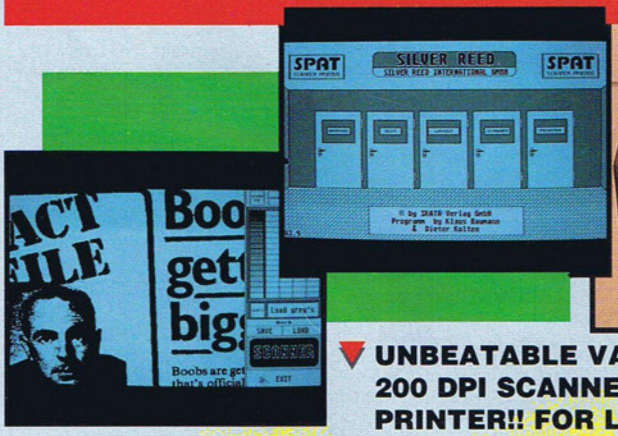
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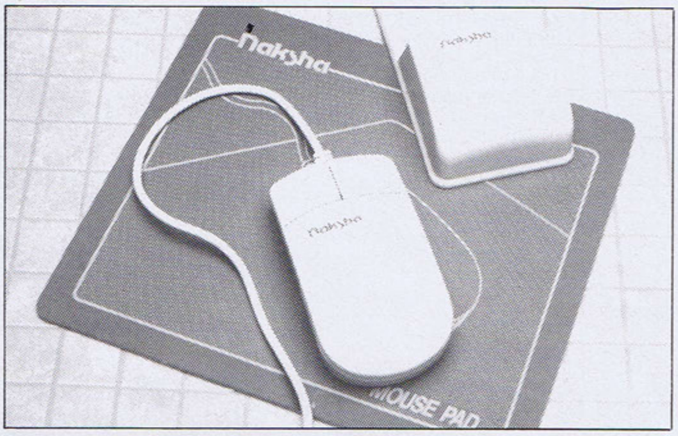
HARDWARE: Courier service £6. Prices subject to change without notice

GETTING THE NAK

JASON HOLBORN takes a look at a mouse that is positively skweeking for some attention.

Reviewing hardware is often a difficult business. When you have to write an original, and above all interesting, review of the umpteenth widget that seems to do precisely the same task as about twenty similar units that you've already reviewed, the life of a technical editor doesn't always seem all it's cracked up to be.

Latest arrival in the Amiga 'Oh no, what can I possibly say about another one of these things?' hardware stakes is the replacement mouse. For one reason or another, the market has suddenly become swamped with the blighters. Is there possibly any room for another? Naksha think so.



Great strength of the Naksha mouse is its flexibility: it can be used with STs and PC compatibles as well as the Amiga. Looks good, too!

You've probably seen Naksha's advertisement with this, and past issues of *Amiga Format*. For those of you who haven't seen it, the ad shows a picture of Naksha mice being used with the Amiga, an Atari ST and a PC compatible. The reason for this image isn't that Naksha are too tight to produce separate ads for the three different machines (perish the thought!), but that their mouse will happily work with all three different machines.

The standard Naksha mouse is actually designed to be used with the PC, but interfacing cables are provided as standard to allow you to connect the mouse to either of the 'other' machines. The first thing you'll notice about Naksha's mouse is the smoothness of operation. Not only does the mouse itself comfortably glide across the desktop, but you feel as if you have a greater control over the onscreen pointer. The mouse buttons (of which there are the standard two) have a considerably more positive click to them than any of the competition (including Boing! and CBM's offering).

To further enhance my opinion of this electronic rodent, Naksha even include not only a free mouse mat, but also a handy little 'mouse house' which is used to store the mouse when not in use. At last, everything you could possibly need to use a mouse is delivered within one package!

The Naksha mouse must surely rate as the number one mouse for the Amiga. Past rival rodents have been either too expensive or just plain lousy to really tempt me away from the official Amiga mouse, but with the arrival of the Naksha's unit, my Commodore mouse has long been put into retirement.

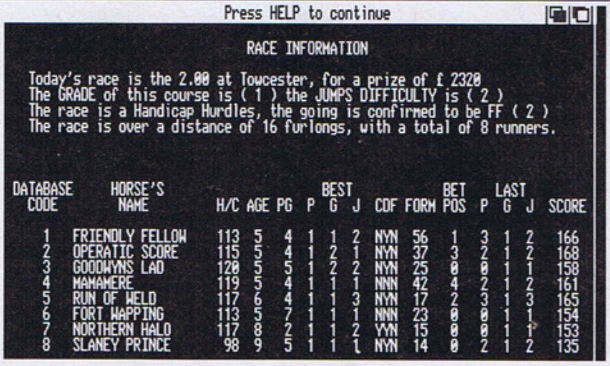
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THE TIPSTER

JASON HOLBORN dons his racing cap and takes a trip to Ascot, with only the *Racing Post*, *Tipster* and his Amiga to help him.

Let's face it, everyone enjoys a flutter on the gee-gees occasionally. But, unless you've arranged a pact with God, your chances of making it big from studying the racing form are virtually non-existent. When a computer program arrives that promises to substantially improve your chances of hitting the big time from gambling, you'd be a fool to miss it... or would you?

The Tipster is a utility program designed to take the drudgery out of studying the racing form. The program is an advanced statistical analysis program that uses horse and venue data from the *Racing Post*, such as the horse's past performance, it's age, handicap, starting price etc, and then produces a list of horses running and their rating, in the form of a score.


Press HELP to continue

RACE INFORMATION

Today's race is the 2.00 at Towcester, for a prize of £ 2320
The GRADE of this course is (1) the JUMPS DIFFICULTY is (2)
The race is a Handicap Hurdles, the going is confirmed to be FF (2)
The race is over a distance of 16 furlongs, with a total of 8 runners.

DATABASE CODE	HORSE'S NAME	H/C	AGE	PG	BEST P	BEST G	BEST J	CDF	FORM	BET POS	LAST P	LAST G	LAST J	SCORE
1	FRIENDLY FELLOW	113	5	4	1	1	2	NYN	56	1	3	1	2	166
2	OPERATIC SCORE	115	5	4	1	2	1	NYN	37	3	2	1	2	168
3	GOODWYNS LAD	120	5	5	1	2	2	NYN	25	0	0	1	1	158
4	MAMAMERE	119	5	4	1	1	1	NNN	42	4	2	1	2	161
5	RUN OF WELD	117	6	4	1	1	3	NYN	17	2	3	1	3	165
6	FORT WAPPING	113	5	7	1	1	1	NNN	23	0	0	1	1	154
7	NORTHERN HALO	117	8	2	1	1	2	YYN	15	0	0	1	1	153
8	SLANEY PRINCE	98	9	5	1	1	1	NYN	14	0	2	1	2	135

Perhaps the most difficult part is setting up your data for horses.

The program works using the principle that if users are consistent in betting habits, they will stand a better chance of winning. *The Tipster* helps you to pick out the best races to put your money on, and hopefully pick winners using the output from the program. According to independent sources, *Tipster* has a success rate of between 50 and 60 per cent, which is quite impressive.

Tipster is best suited to races that have 10 runners or less. When a race is run containing more than this number, the chances of having equally matched horses is substantially increased. Often when the prize money for a single race is greater than £3000-4000, a jockey will push a horse for the higher prize. If the prize money is less than this amount, the prize is not worth the risk of causing injury to a valuable horse, therefore the jockey will often take things easy. Best results can therefore be gained when less than 10 horses are running in a race which has a £3000+ prize money.

Don't for one minute think that *The Tipster* is going to make you a million. It really provides suggestions that should be only taken as a guide. As the manual states, if in doubt, don't bet. However, the results from using *The Tipster* are very encouraging indeed. During program testing, the programmer (Steve Marriot) managed to notch up £55 from an initial £1 bet.

Similar packages for the Amiga will set you back at least £100, and even then they often fail to deliver the kind of flexibility that *The Tipster* offers. At the price, no self respecting punter can afford to be without it.

THE TIPSTER
£29.95 ■ All Amigas ■ TAM Marketing (0395 513558)

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LIGHT FANTASTIC

It's been a long time coming, but Jeff Minter has finally unleashed the Amiga version of the classic *Trip-A-Tron*. Wearing camel-hair coat and with cup of tea in hand, **JASON HOLBORN** embarks on the ultimate trip.

Although *Trip-A-Tron* is the first product release from Llamasoft for the Amiga, the names of both Jeff Minter and Llamasoft will no doubt be immediately familiar to the majority of Amiga owners. Jeff, renowned for his originality and peculiar taste in companions (sheep and llamas mainly), has inspired an entire subculture of gameplaying llama lovers and armadillo admirers. Almost all computer users who have upgraded from machines such as the C64, Vic20 and C16 will have seen one of Jeff's creations at one time or another.

Light Source

Even though Jeff still indulges in the occasional game, *Trip-A-Tron* has been an ongoing project for the last couple of years. The forerunner of *Trip-A-Tron* was a program on the Commodore 64 called *Psychedelia* that eventually evolved into the *Colourspace* system on the Atari. Not content with *Colourspace's* capabilities, Jeff pushed the system still further and *Trip-A-Tron* was born. Although this brings us up-to-date, the story doesn't end there as Jeff is still tinkering with *Trip-A-Tron,* enhancing it and adding new features every time he 'feels' like it.

Sound To Light

Everyone has heard of the sound synthesiser, where basic waveforms are manipulated and combined into what eventually reaches your ears. In many respects, *Trip-A-Tron* is very similar to a synthesiser, but rather than sounds, on-screen images are created from basic effects such as dot patterns, starfields and geometric shapes. However, unlike a synthesiser, the raw material of *Trip-A-Tron's* creativity is light, in the form of screen pixels.

Unlike similar units, *Trip-A-Tron* isn't a sound-to-light converter (such as the *Visual Aural* system available in the States). These fairly simple devices convert an analogue sound signal (from a HiFi, Walkman, CD player etc) into on-screen graphics, but usually entail very little user interaction: just feed in the sound source and the computer does the rest. *Trip-A-Tron,* on the other hand, is more of a performance instrument to be 'played' in a live situation, allowing the performer to express him or herself through on-screen graphics rather than sound.

Artificial Light

Describing the images that you can create with *Trip-A-Tron* is a difficult task, as there is very little to compare it with, and mere words really do not do it justice. In a similiar way that a review of a music synthesiser cannot even hope to fully convey the sound quality of the instrument, static screen shots fail miserably to show the program's capabilities.

Trip-A-Tron can create trails of kaleidoscopic pixels, dynamic starfields, geometric shapes, laser writing and just about any other effect that your creative abilities can conjure.

The number of different combinations of effects within *Trip-A-Tron* seems almost limitless: just when you think you've spotted an effect that you've seen previously, the screen metamorphosises into a completely different and unique combination of swirling and pulsating pixels. Most of the effects can be controlled with the mouse. By simply dragging the mouse across the desktop, a stream of cycling pixels trails behind, before eventually decaying into darkness.

Controlling The Elements

The effects that can be created within *Trip-A-Tron* are split into individual sections and arranged within the system as separate screens. These separate menus cover disk accesses, waveform generation, pattern creation, the colour cooker (for designing colour palettes), starfield edit, keyboard assignments and the video sequencer. Unless you've got a megabyte or more of memory, several of *Trip-A-Tron's* more complex operations are not available.

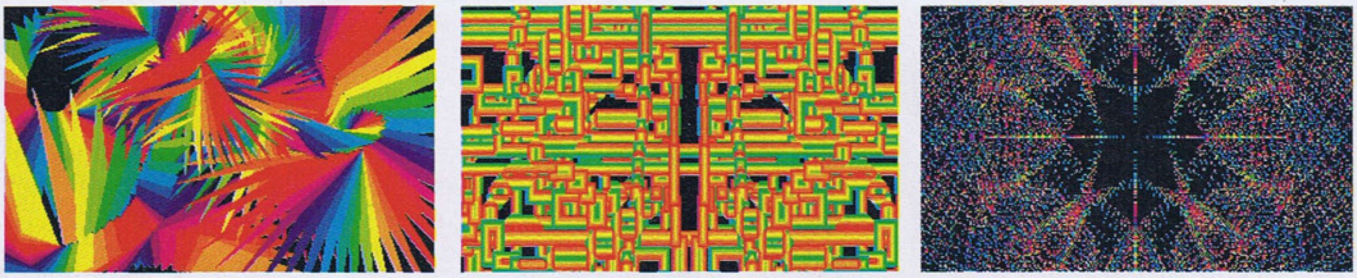
The video sequencer is a complex image manipulation system that allows sophisticated effects such as 3D rotations or mosaicing to be carried out on standard 16-colour IFF images. The system works a little like the 'Move' option in *Deluxe Paint 3,* where you specify the image to be manipulated, set the number of frames the animation is to be rendered into, set the parameters and leave the program to do the hard work of the rendering. Image manipulation calculations are complex at the best of times, and so generating an animation across a range of frames can take a very long time.

Jean Michel Jarre-like laser effects can easily be created using the rather strangely named *SillyScope*. However, due to their mathematical complexity, using them extensively does tend to slow down the whole system unbearably: you can actually see everything being drawn when a particularly complex laser is used. Whole lists of KML programs can be chained together into a continuous loop using *Trip-A-Tron's* Internal Event Sequencer. Like a MIDI sequencer, *Trip-A-Tron's* sequencer records keystrokes in real time across eight separate channels. This is particularly useful for synchronising *Trip-A-Tron* effects with music: for example, *Trip-A-Tron* strobe effects can be triggered in time with the crash of an orchestral stab. Like most things in *Trip-A-Tron,* the real power of the system doesn't really dawn on you until you've played with the sequencer for a long period of time.

What would have really made the *Trip-A-Tron* sequencer of use would have been the inclusion of MIDI support. By running *Trip-A-Tron* on its own separate MIDI channel, effects could be synched directly with the music using 'MIDI note on' messages. Using dedicated System Exclusive messages, every aspect of the program could be controlled directly from a MIDI sequencer. Now that's true creative power!

Light Programming

Just like a real synthesiser, any effect can be created in real time by just entering the appropriate menu and altering parameters until the desired effect is achieved. However, if you wished to use *Trip-A-Tron* in a live situation, you just won't have the time to stop the performance, make a few parameter changes and then carry on. What you need is the light synth equiva-



Three examples of the amazing effects possible with *Trip-a-Tron* running at full steam ahead.

lent of the synth patch bank. On most modern synthesisers, it is possible to store up to 128 different sound 'patches' in memory at any one time. Using program change messages, any patch can quickly be called up and used. With *Trip-A-Tron,* whole sequences of effects can be built up and assigned to any key on the keyboard using KML, the Keyboard Macro Language.

KML is a powerful BASIC-like programming language that allows almost complete control over every aspect of the *Trip-A-Tron* system. The language includes many structured commands that you'd expect to find in a programming system such as standard and conditional loops, decision making etc. To help you get to grips with KML, the program disk includes quite a few demo KML programs that are well worth playing with.

As with a multi-timbral synthesiser, up to eight different KML programs can be executed concurrently by assigning each to separate channels.

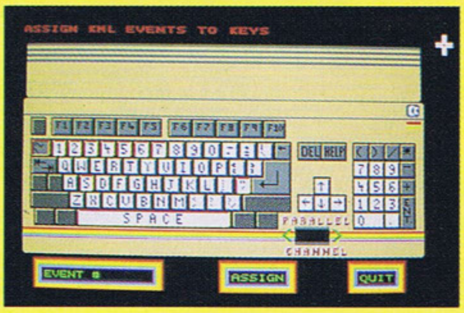
The Ultimate Trip?

The only negative aspect of the program is that it shows its Atari origin and very little effort has been put into the conversion to add the kind of magic that only the Amiga can achieve. High resolution screen modes, an immense colour palette and powerful graphics hardware makes the Amiga the ideal medium for such a program as *Trip-A-Tron.*

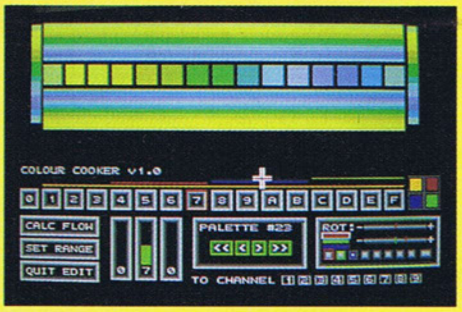
At the very least, it would have been nice to have a full PAL resolution screen: as it is, that dreaded gap at the bottom of the screen limits the program's usefulness for adding weird effects to your rock videos. In an ideal world, *Trip-A-Tron* would have operated in both PAL and overscanned screen modes, employing upto 64 colours on-screen with Extra-Halfbrite. MIDI support (as discussed earlier) and a little bit of Amigaising would have made *Trip-A-Tron* a formidable package.

Gripes aside, *Trip-A-Tron* is an immensely powerful system that will fascinate you for hours on end. For best effect, turn off all lights, put on your favourite CD (Jeff recommends anything from Pink Floyd, but I personally found Depeche Mode's Music For The Masses ideal jamming material!) and pump up the volume... oh yeah, and don't forget that a nice steaming hot cup of tea always helps the creative flow! ■

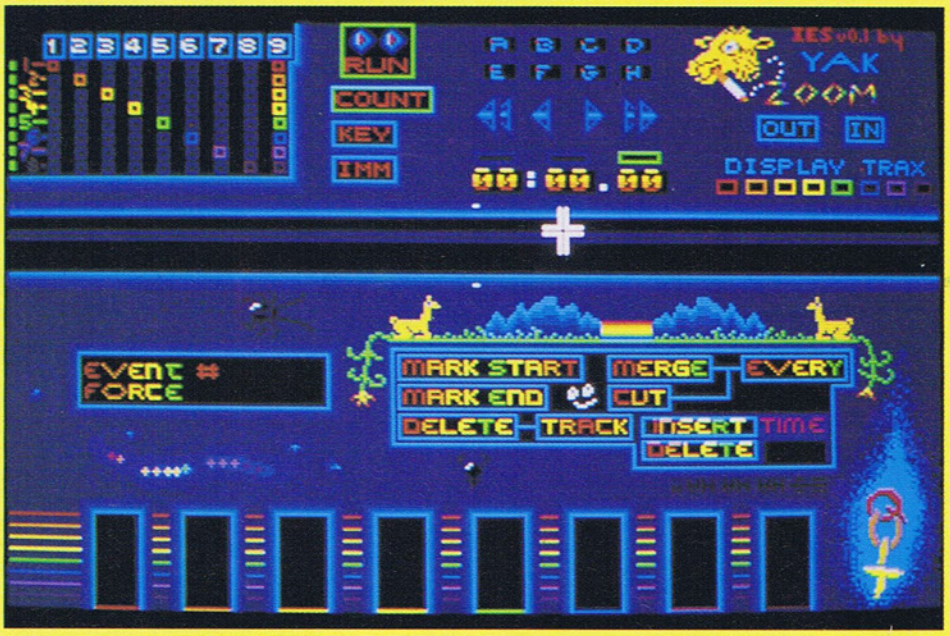
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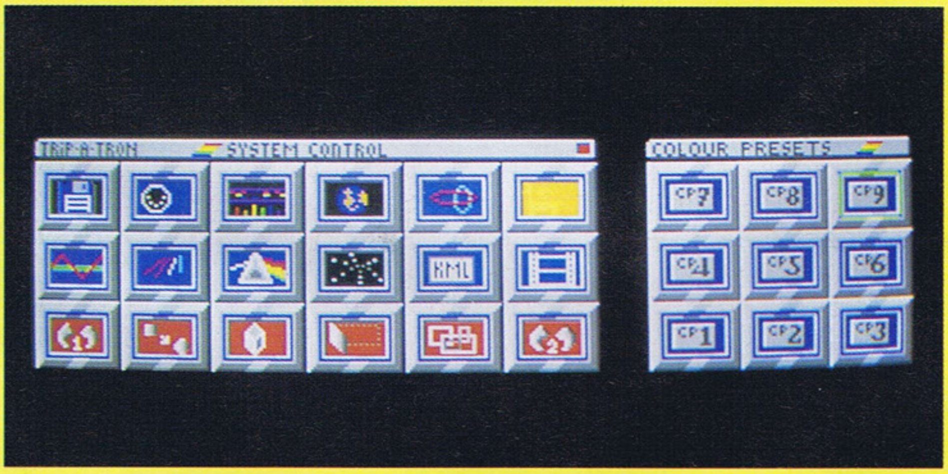
The keyboard assign page, where you assign KML routines to various parts of the keyboard.



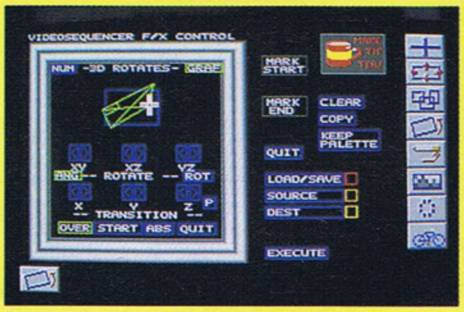
Designing customised colour palettes with the aid of the Colour Cooker facility.



The Internal Event Sequencer allows you to build up sequences of Trip-A-Tron events.



***Trip-A-Tron's* main control screen. From here you can access all of the various sub-menus.**



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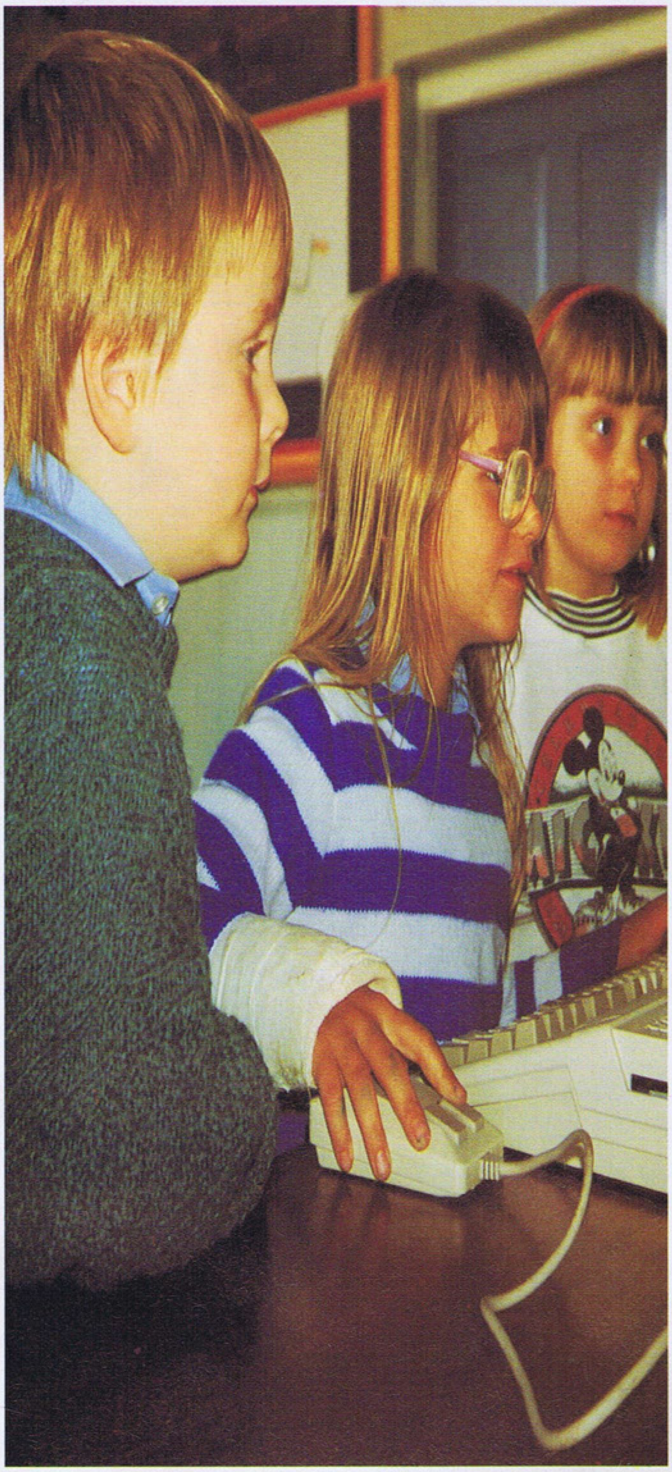
Many thanks to Broadstone First School, Dorset, for their cooperation in the making of this article.

DAMIEN NOONAN tries out the flagship of educational packages where it counts: in a real classroom.

Some of us never got to grips with learning by rote. It always seemed easier to calculate times tables as you went along, so long as you remembered a few key ones such as the squares. Eight eights? No problem! But to those of us educated in an age when primary school mathematics meant reciting your times tables, the idea of six- and seven-year-old children learning to program computers seems pretty ambitious. Global variables? Umm... not a clue.

Computers have been in the classroom for more than a decade now, which is long enough to break down old-fashioned ideas of what kids can and can't do. At the vanguard of the computer revolution has been an educational package called *Logo*, most widely used on the dear old BBC.

Commodore spotted how important this product has been in education, and realised the need for an Amiga version. So now, as part of their carefully-planned foray into the education market, Commodore themselves have backed the writing of *Amiga Logo*. And a good thing they did, too.



What is Logo?

Logo has been described as a simple graphics programming language. The graphic displays which are the output of the programs written by the children are mighty pretty in themselves: but in fact they are almost diagrams for geometrical relationships and for logical processes.

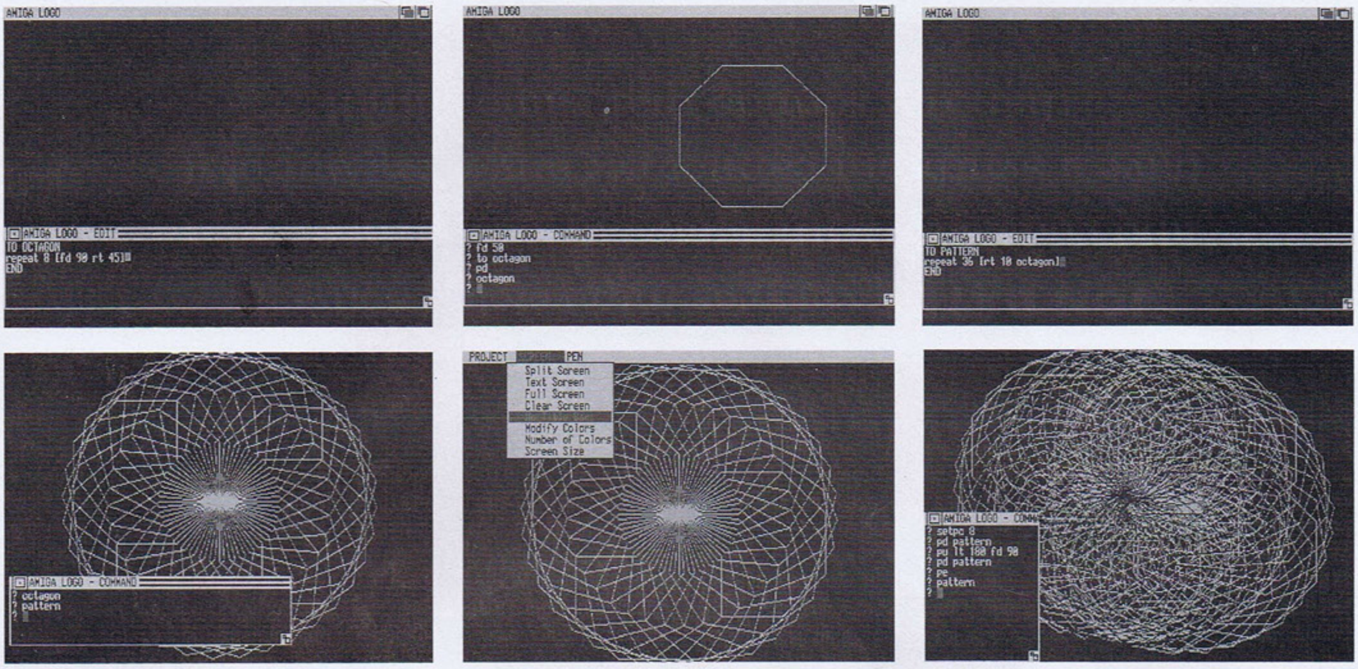
Sounds a shade complicated? Well, in reality it couldn't be more simple. The on-screen display consists of two main windows: a graphics window and a text-editing window. In the graphics window sits a small cursor, known in the original 8-bit versions for the sake of *Logo's* diminutive users as a Turtle. With commands entered in the text window, the Turtle can be made to crawl around the screen. Basic commands, for instance, are forward or backward (with a distance specified as a number), turn left or turn right (by a number of degrees). Easy enough so far.

Next option is to make the Turtle draw a line wherever he goes. Use the pen down command and he's ready to scribble. Ask him to move forward 100 steps (the on-screen distance of a 'step' is a set but relatively arbitrary distance: top screen to bottom is about three hundred steps). Then ask him to turn right 90 degrees. Repeat this three times and he's back where he started, having drawn a square.

Drawing to Programming

Next stage is to use the 'Repeat' command to do the boring work for you. Define your movement and turning, plonk 'Repeat 4' next to it, and you're away: a square drawn in no time. Suddenly you begin to realise that this little set of instructions is growing into a program. With the command 'To', you can define it as such: known in *Logo* as a procedure. Give your procedure a title: let's call it 'Square'. Type 'To Square' and the text window enters edit mode: write your program, and exit the edit screen back to the command screen (the ordinary text window). All you have to do now is type 'Square' and a square is drawn.

By now, you should be getting a reasonable impression of how *Logo* works. You can combine individual instructions into a procedure, and name it. You can then call that as a sub-procedure into another: for instance, you might turn the Turtle a little and then draw your square again, and repeat this a number of times. You can even define variables, so that you could turn your Turtle by n degrees and add one to n for each square. Now we're programming!



Stephen and Alasdair's experiment. The Octagon procedure is written (Top Left) **and run** (Top Centre)**. This procedure is then called in to another** (Top Right) **to draw the pattern** (Bottom Left)**. The whole screen can be revealed** (Bottom Centre)**. Multiple patterns** (Bottom Right) **are a simple step.**

A Generation of Programmers?

Hopefully, you should have the idea by now that Logo really does teach six-year-olds to program computers. Not just the structure of procedures, sub-procedures and variables: even details like the importance of correct spelling of names and correct syntax are demanded by *Logo*. But, you may well be thinking, what use is a generation of programmers?

Well, that's not quite the point. Quite apart from the benefits of hands-on experience and computer literacy in the last decade of this millennium, *Logo* is also teaching very basic patterns of thought and logic. The Turtle's movement involves simple vector graphics, potentially use of Cartesian coordinates, and the concept of degrees in a circle: basic geometry. The rigours of de-bugging, if a procedure doesn't do what you expect it to, involve some heavy logic and conceptual thought. And the shared experiences of creativity and problem-solving in a group of two are three children encourage cooperation and teamwork. Oh, and let's not forget this: it's also brilliant fun!

First Impressions

To road-test the all-new Amiga version, we enlisted the aid of Alasdair Clarke and Stephen Beasley, two lively seven-year-old lads with some months' experience of the BBC *Logo*. They were there to test whether the Amiga version could be used by kids who had experience of other versions, and also to tell us if they thought *Amiga Logo* is even better!

First priority, then, was simply to see how the two got on if they were just plonked down in front of the program and asked to get on with it. They were clearly impressed by the Amiga's graphic power from the off: the little drawing of a turtle that represents the cursor on the graphics window was greeted with warm approval. Stephen and Alasdair immediately suggested a clever little procedure they knew off by heart to draw an octagon. So off they went...

Very quickly, they had their procedure typed in and run. There appeared to be no problems at all with compatibility: both commands and syntax were familiar, and the procedure worked perfectly.

Getting Sophisticated

Next suggestion from the dynamic duo was to run a procedure that a friend of theirs had created, which turned the Turtle through ten degrees before redrawing the octagon a number of times. A little bit of input from myself, to suggest that 36 repetitions would take the Turtle full circle to draw a round shape, and they were away.

The result was so impressive that the teacher immediately had to be called to show it off. Already, creative exploration was being rewarded by a feeling of achievement: and squidged almost invisibly in the middle, these guys were learning something.

Time for something new, something the dear old Beeb hadn't shown them yet. I pointed out that the colour of the pen could be change to any of 32 preset colours. They learnt the command and started using it. Halfway through our octagon procedure, we changed the pen colour from green to purple. The resulting two-coloured octagon was again greeted with delight.

Better still was what followed. By simply running our 36-repetition procedure with the new two-colour octagon, we got a rather beautiful two-colour pattern. Marvellous!

More with the Mouse

By this stage, Alasdair and Stephen were quite happy to miss their morning playtime. In return, I figured it would only be fair to cut the serious stuff and get down to some heavy messing about. Time to bring the mouse and the menus into operation, and show off the Amiga's capabilities. *Logo* provides a demonstration drawing of a car, which the Turtle whizzes about the screen drawing. The outlines are then filled: a handy *Amiga Logo* option which the kids enjoyed playing with. We pulled down the 'Modify Colours' menu and started mucking about with the RGB values of the various colours, which was great fun.

By the end of a two-hour session, our volunteers were getting to be quite at home with file requesters, pull-down menus and the two-button mouse. They'd also found out that you can pull the whole *Logo* screen down to reveal the Workbench screen behind, which was actually a bit of a nuisance: but there you go. Altogether, the verdict from Alasdair and Stephen was: very good indeed.

Conclusion

Couple of very minor gripes: firstly, since the program window could be pulled down, the children ended up managing to load *Logo* in about three times, which became a little confusing. Secondly, the BBC version can be used in conjunction with a couple of kinds of remote-control 'Turtle' robots, which crawl around a classroom floor and are an excellent visualisation of the movement-control commands for younger kids. Pity this could not have been included in the Amiga version.

Apart from these two things, the program is well conceived, well designed, robust in operation and a very fine product. Although our tests were with younger children, the complexities develop as you learn more about the product so that the language can be used to teach some quite complex programming procedures and to cast light on some heavyweight mathematical concepts.

All in all, this is an excellent educational package. If you wish to use it in the home, you will generally need to be willing to learn its use yourself from the manual and impart the knowledge to your children piece by piece, so it will require some involvement. This in itself is no bad thing.

The great strength of *Logo* is that it is explorative in nature, requires cooperation, and rewards achievement with a feeling of success. Too many educational packages lack excitement, too many teach by repetition: the old times tables. *Logo* stands head and shoulders above these, and admirably practises the preachings of modern education. ■

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QUESTIONNAIRE

Amiga Format has been in existence for seven issues now. It's about time we found out who you are and what you want from *Amiga Format*. So don't be shy, this is your magazine and we want to give you the best. Fill in the form and send it to: **Amiga Format Questionnaire, Beauford Court, 30 Monmouth Street, Bath BA1 2AP**. A photocopy will be fine.

Name ....

Address ....

....

....

1. How old are you?
Under 16 ☐
17-24 ☐
25-34 ☐
35-44 ☐
45-59 ☐
Over 60 ☐

2. What sex are you?
Male ☐
Female ☐

3. How much do you earn a year?
Nothing ☐
£3,000-£6,000 ☐
£6,000-£10,000 ☐
£10,000-£15,000 ☐
£15,000-£20,000 ☐
Over £20,000 ☐

4. Which computer do you own?
A1000 ☐
A500 ☐
A2000 ☐
Other ☐

5. What hardware do you (a) own or (b) intend to buy during 1990?

	(a)	(b)
Second disk drive	☐	☐
Hard disk	☐	☐
Video digitiser	☐	☐
Sound sampler	☐	☐
Midi interface	☐	☐
Joystick	☐	☐
Modem	☐	☐
Memory upgrade	☐	☐
Printer	☐	☐
Monitor	☐	☐
Genlock	☐	☐
Scanner	☐	☐

6. What software do you (a) own or (b) intend to buy during 1990?

	(a	(b)
Games	☐	☐
Wordprocessor	☐	☐
Database	☐	☐
Spreadsheet	☐	☐
Art	☐	☐
Music	☐	☐
DTP	☐	☐
Comms	☐	☐
Assembler	☐	☐
Accounts	☐	☐
CAD	☐	☐
Programming language	☐	☐
Video	☐	☐
Sound sampling	☐	☐
Video digitising	☐	☐

7. What do you use your Amiga for? Give a percentage rating.
Games ☐
Creativity (art, music etc) ☐
Business ☐

8. On average how much do you spend on software and hardware each month?
Under £20 ☐
£21-£40 ☐
£41-£60 ☐
£61-£80 ☐
£81-£100 ☐
Over £100 ☐

9. Breakdown your spending last year.
Hardware £
Games software £
Creative software £
Serious software £

10. Estimate your spending for next year.
Hardware £
Game software £
Creative software £
Serious software £

11. How many games will you buy in 1990 ?
1 – 5 ☐
6 –10 ☐
11 – 20 ☐
21 – 30 ☐
31 – 50 ☐
51+ ☐

12. Which piece of software do you use the most? Name one only, please ....

....

13. Rate the computer magazines you read.
Amiga Format ..../10
..../10
..../10
..../10
..../10
..../10

14. Rate your interest in our regular sections.
News ..../10
Previews ..../10
Graphics ..../10
Screenplay ..../10
Disk ..../10
PD Update ..../10
Music ..../10
Workbench ..../10
Gamebusters ..../10
Letters ..../10
DTP ..../10
Competitions ..../10
Adverts ..../10
Hardware reviews ..../10
Serious software reviews ..../10
Guru's meditations ..../10

15. Choose one of these subjects that you would make a regular section.
Adventures ☐
DIY projects ☐
Assembly language tutorial ☐
American column ☐
European column ☐
C programming tutorial ☐
Comms ☐
Education ☐
Comment/opinion column ☐
None of the above ☐

16. Name the one section you would most like to get rid of. ....

17. What has been your favourite one-off feature in all the issues of *AF* you have seen? ....

....

18. Of the issues you have seen which has been your favourite cover on *Amiga Format*?
1. Unleash the Power ☐
2. Dream Machine ☐
3. Music Alert! ☐
4. Everything you always... ☐
5. Art Attack! ☐
6. Head On ☐
7. Secrets Revealed ☐

19. Who is your favourite software or hardware company? ....

20. Did you read *ST/Amiga Format* before the titles were split into two?
Yes ☐
No ☐

21. Are you a subscriber
Yes ☐
No ☐
Intend to be ☐

21. How many issues of *AF* have you read?

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

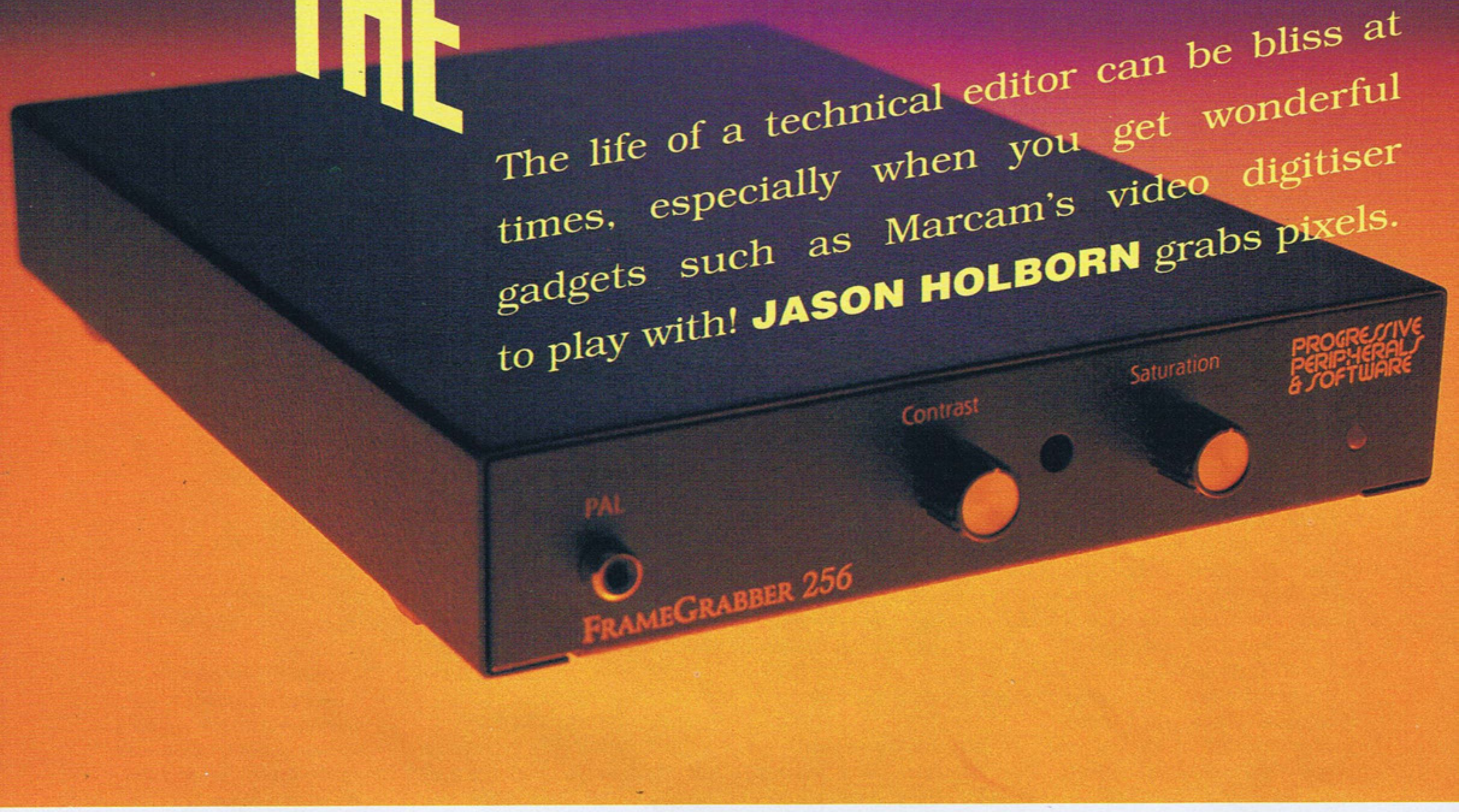
22. Should the Coverdisk have a playable game demo on it ?
Always ☐
Sometimes ☐
Never ☐

23. Do you get software from the Public Domain libraries...?
Often ☐
Occasionally ☐
Once only ☐
Never ☐

24. Here's the bit where you tell us what else we can do to improve the magazine. We've left plenty of space and will be printing the most constructive/interesting/controversial comments in a future Letters page, so let us know what you feel most strongly about.

....

THE FRAME GAME



The life of a technical editor can be bliss at times, especially when you get wonderful gadgets such as Marcam's video digitiser to play with! **JASON HOLBORN** grabs pixels.

Video Digitisers can be a great deal of fun – being able to grab images from the real world, load them into your favourite paint packages and then play plastic surgeon with the digitised features of your nearest and dearest has a certain sadistic quality to it.

Although digitisers can be a great deal of fun, they can also be immensely useful gadgets. We on *Amiga Format* use video digitisers extensively for the production of the mag: if we need a picture of a particular person or object, but just can't wait for slide film from a camera to be processed, then out comes the digitiser and video camera. Within seconds we have a picture in either colour or grey-scale that can be imported directly onto the page of our Mac-based DTP systems.

The choice of what digitiser to shell out for is fast becoming one of the most difficult buying decisions that you're likely to encounter once you've bought your Amiga. Since our recent round up of available digitisers (Issue 4 of *AF*, for those of you who missed it), several new units have appeared on the market that offer high performance at amazing prices. Latest arrival is the imaginatively-named Frame Grabber, from Marcam Ltd.

Frame At Last!

The Marcam Frame Grabber was originally developed by Progressive Peripherals and Software in the States, a company that is probably best known amongst Amiga owners for their excellent image processing program, *Pixmate* (indeed, the Frame Grabber software was written by the author of that package, Justin McCormick). Those of you who study the American computer press may have seen advertisements for Progressive's unit for almost a year and, after much delay, production versions are finally available. The UK version of the grabber is manufactured in this country by Marcam, and therefore carries their name-tag.

Marcam's unit is a real-time colour frame grabber similar to JCL's SuperPic, a device that received rave reviews from all quarters of the Amiga industry (including *Amiga Format*). However, Marcam's unit not only produces better quality grabs, but it also happens to cost £100 less than its nearest rival. With a specification such as that, can you really afford to ignore it?

Although there are cheaper colour units available (Power Computing's Videon springs to mind), the difference between Marcam's Frame Grabber (and indeed SuperPic) and those so called 'budget' colour digitisers is that the Frame Grabber is a true real-time colour video digitiser. Grabbing a colour image with Videon can take up to 30 seconds, during which the image being grabbed must be perfectly still. Even the slightest movement can result in a visible blurring in the resulting image.

Frame Grabber works by storing the incoming video signal within its built-in frame buffer. When you ask it to grab the image, the digitiser freezes the current frame within its internal memory and then uploads it to the Amiga. For a standard non-interlaced screen, the actual digitising process itself takes a 50th of a second. For interlaced screens, two video fields must be grabbed, reducing the grabbing speed to half that of a non-interlaced display. Before the picture is finally displayed, the software carries out all forms of jiggery-pokery to enhance the grabbed image, such as optimising the colour palette. After a couple of seconds of processsing, the resulting grab is finally displayed.

The video signal can be fed into the unit from just about any PAL video source. Both the intensity and saturation of the input signal can be altered using ▶

the knobs on the front of the digitiser unit. At any time during your digitising sessions, the monitor display can be flicked between the Amiga and the frame buffer by simply hitting the <tab> key. Our review model was tested using a standard VHS video recorder, a Panasonic VHS colour video camera and a Hitachi mono video camera. All worked fine and produced some really quite astounding results.

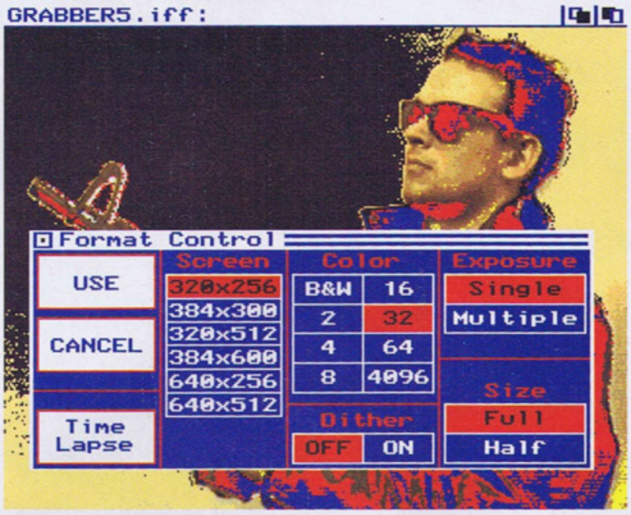
As mentioned earlier, the Frame Grabber can grab live images in colour from either a colour video camera or mono video camera. However, If you do use a mono camera, the picture has to be scanned three times using DigiView-like colour filters, before the final image can be built up. Using this technique, the live image being grabbed must be kept perfectly still. Obviously, for optimum results, a colour video camera is recommended.

Quality Control

The quality of grabbed images is just amazing: take a look at the example pics that we grabbed and I'm sure you'll agree! Although the pictures within this review are only 32-colour, low-resolution images, the Frame Grabber will happily grab images in all Amiga screen resolutions (including Overscan and Extra Half Brite) in two to 4096 colours.

To further enhance the quality of grabbed images, the Frame Grabber software allows you to carry out an average of multiple exposures of the same image. This helps to sharpen the grab by removing display 'noise'. Once a frame has been grabbed, the picture's colour palette can be tinkered with using either the 'colour bias' or by directly modifying individual colours within the colour palette. For the ultimate in image processing software, Progressive's other product, *Pixmate*, is a must.

Grabbed Frames can be saved either as standard IFF ILBM picture files (for use within the vast majority of Amiga graphics software) or as 12-bit RAW and IMG8 files (which could be displayed using a Frame Buffer).



The Format Control option allows you to set the screen resolution, number of colours etc to be used for grabbing.

Frame By Frame

One of the most intriquing aspects of the Frame Grabber software is the 'Anim' menu, which allows you to build up massive animations composed of digitised frames.

The animation function works by first opening an animation file on disk at the start of the animation-building process, and as each frame is grabbed, appending the new frame onto the end of the file. Once all frames are successfully grabbed, the animation file is closed and can then be reloaded and played back. The benefit of this system is that the size of the animation on disk is limited only by the size of your storage device: just think what you could do with a 250 Mb Hard drive!

Unfortunately, to be able to play the animation back you must have sufficient RAM within your machine to hold the entire file. Animations are saved in standard IFF ANIM format, and can therefore be loaded into any package that supports the ANIM file format. Most animation packages such as *Ani-Magic, Deluxe Paint 3* and *Deluxe Video 3* support the ANIM format, therefore allowing you to cary out refinements to your animations within more aptly qualified packages.

Conclusion

Marcam's Frame Grabber currently represents the state of the art in Amiga video digitising technology. The only other digitiser that puts this unit to shame is NewTek's Video Toaster, but you can expect that (when it is released) to cost double the price of Marcam's unit.

Any digitiser with a price tag greater than the cost of the Amiga itself isn't really aimed at the home user. Although £500 may sound like a lot of money (it is a lot of money!), the Frame Grabber is still exceptional value for what it offers. If you feel you can justify spending £500 on a video digitiser, then Marcam's Frame Grabber is definitely the one to go for. If I can talk my bank manager into overlooking a £500 overdraft, I'll be the first in the queue to buy one! ■

FRAME GRABBER
Price Around £500, To Be Confirmed ■ All Amigas, 1 Mb Recommended ■ Marcam Ltd (0604) 790466, Direct Sales (01) 941 6117



Look at the quality of some of these grabs! Although the pictures on this page are grabbed in only 32-colour, low-resolution format, Frame


Grabber will happily grab images from two to 4096 colours in all Amiga sceen resolutions.

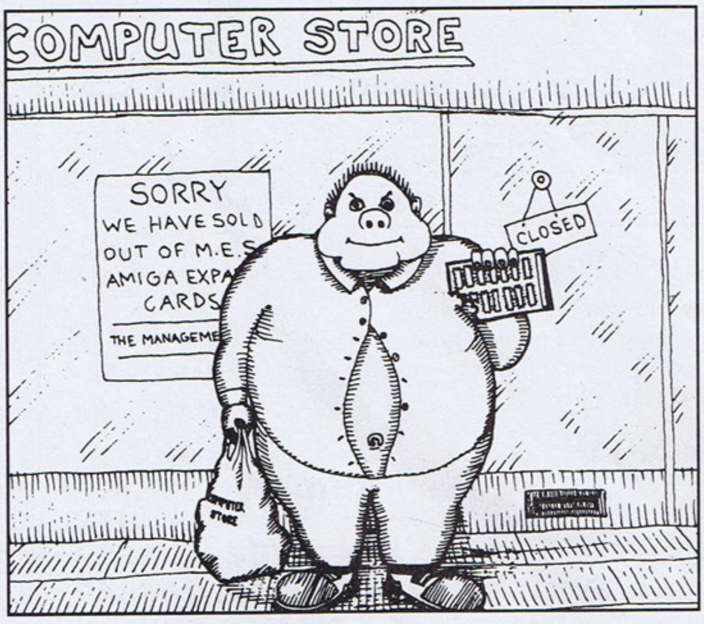
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VOICE SYNTHESISER

JON BATES voyages into voicing software and comes up with some advice for those who have a synth but cannot get any more out of it than the sounds that came with it.

If you have ever bought a synth you will doubtless have been impressed with the sounds it produced – otherwise surely you wouldn't have bought it in the first place! Believe it or not though, most purchasers of synths and tone modules use only the sounds that are in the machine – those very same sounds that they were so impressed with in the shop. This has always seemed a bit silly to me as I've always found that only half the internal sounds are really at all useful.

The current trend is for the manufacturer to sell you extra sounds which are usually contained on a memory card or on a cartridge. This would be fine, except that these usually cost in excess of £40 each and again you are not guaranteed to like all of them. The reason for the above facts is ravingly obvious: synthesizers are awkward to program.

Juggling Eggs

Back in the steam age of synthesizers everything was programmed visually, the position of the sliders controlling the sound. Digital synthesizers replaced the sliders with multi-tasking buttons and a LCD and there is now a very high 'complexity to button' ratio. This means that most of the peripherals that make up the sound and set up the instrument are not visible; only a sfew are seen at any one time and usually numerically. Unless you have the abiltiy to perform differential calculus while computing the betting odds for the 3.30 at Newmarket and simultaneously juggling eggs the chances of you coming to grips with producing sounds of any worth are minimal.

Let's suppose that you overcome these problems and can quite happily program decent sounds from the front panel of your instrument. Where are you going to put them? Why, over the top of some of those grotty sounds of course.

But supposing you fill the memory of the synth to the point where there just aren't any nasty unwanted sounds in it at all. You have nowhere to put your new creations unless you fork out serious money for some sort of external memory storage device such as a RAM cartridge.

Having created a synthesizer full of wonderful sounds you still may have a problem. The sounds that fit into a category of, say, strings, may well be spread throughout the memory allocations. In other words the memory is a bit of a jumbled mess. Sorting it out into some sort of order is going to be the sort of task that you put off until terminal boredom sets in unless you happen to be a Rubik Cube champion.

More Doom and Gloom

The gloomy picture of chaos is darkened as the multi-timbral synth/module hoves into sight and sound. Not only do you have the joy of sorting out and programming the sounds into their appropriate pigeon holes but you can assemble them into stacks of maybe up to eight simultaneously. The name for this may change from one manufacturer to another but the principle is identical.

You set up a number of sounds into a particular configuration. Each sound in the configuration may need to have specific instructions given to it: note range, MIDI channel, sensitivity to velocity, after touch, pitch bend, etc etc. There may be more than 60 or so configurations in a single tone module. As you can imagine, this is the stuff that premature baldness and advanced senility is accelerated by. ▸

Call for Captain Amiga!

No. What is definitely needed is Amiga assistance here. Enter voice programming software. Voicing software is nothing particularly new – it has been around since the first MIDI synths – but it is the facilities that they offer that have been increased as the demand for voicing software has increased, which in turn is a result of the instruments themselves increasing in complexity.

They talk to the instrument at the highest level of MIDI communication, Systems Exclusive, and allow you to directly affect the sound of the synth. Having created the sound you will have to store it somewhere. That 'somewhere' in the most basic of cases will be the memory of the synth itself, which is really only one rung off the bottom of the ladder. What is required is some sort of database for the sounds to be stored in so that you can dump out the data for each sound onto a separate storage medium, which in this case will, of course, be a disk.

Robbing Banks

For greater sophistication, the general way that programming software works is that not only are voices stored on disk, but they are set up into banks of sounds. If, for example, your synth has 64 sounds available at any one time and these are split into two banks of 32 each, then the voicing library will most probably be set up in groups of 32.

Most librarian facilities have an on-screen clipboard that will let you assemble a fresh bank of sounds from existing libraries. While we are on the subject of sound banks, even the most basic of voicing software should let you send and receive sounds either one at a time or as a bank.

As to the actual editing itself, the approved method is for the sound, or parts that go to create the sound, to be displayed on the screen in the form of a number of graphs. There are usually minute boxes set into the line that forms the shape of the graph and it is into these boxes that you click the mouse cursor and drag the line around, thus changing the sound as you go. It is the norm that there is a compare buffer that stores the sound as it was originally so that if you scramble the sound too successfully you can always return to base camp.

Libraries and Maps

With the multi-timbral synths there may well be different sorts of libraries that you can save individually. As well as basic sounds themselves and a library of stacked sound configurations there could be a drum map; allocating each drum to a particular note on the keyboard. Although it is preferable to keep the most often used drums to the same notes, if you are using more than one instrument in a MIDI set-up then it is quite possible that the factory settings for the drums differ from one to another.

This creates more complications if you have to keep changing the drum notes when you shift from one instrument to another; you may decide that the snare drum on, say, a Roland D110 is preferable for a particular piece to the one contained on the drum machine you are using BUT you want to use the rest of the drum kit. If you are able to quickly change from one to another since the note numbers are the same it will save a lot of time. On the other hand it could be that you need to throw away quite a lot of the drum kit and only use a few of the sounds in combination with another drum kit from a different module. If you can utilise a customised drum map which you can load up, the time which will be saved is considerable.

Interactive Music Software

Since we are looking at music making in a computer magazine then it would be not an unreasonable supposition to make that you would be considering using a sequencer to fire up your pieces. All encompassing software like *Music X* (See Issue 3 for complete review) has programming modules built in so that all you need to do is flip from one screen to another and tweak a sound or load in an entirely new set.

But suppose you want to use voicing software at the same time as a sequencer, not an unreasonable demand since often sounds need to be changed as the piece develops and progresses.

For the Amiga, being a multitasking machine, this is not really a problem as you can flip from one to the other provided you have the space in the memory.

However it is now very often the case that sequencing and voicing software from the same stable is interactive – that is to say that you can flip from the sequencer whilst it is running, make alterations to the sounds which are memorized in the voicing software, and flip back to the sequencer. In some cases the sequencer will remember real-time tweaks to the sound so that the sound will actually change while the sequencer is running.

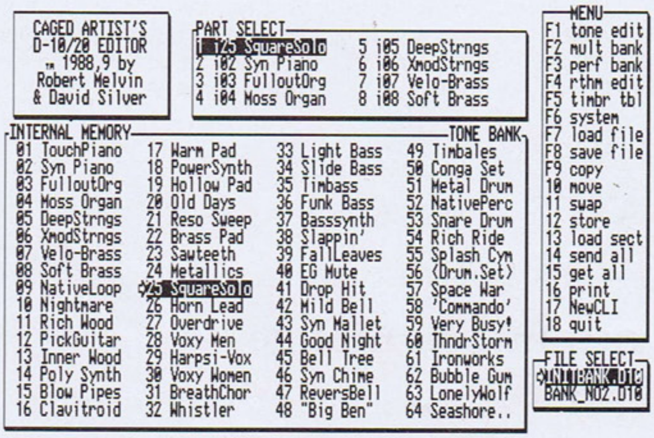
WHAT TO LOOK FOR IN VOICING SOFTWARE

If you are considering buying software to tweak your synth, then take on board these five most basic, essential points.

1) **Graphic editing is a must – you should be able to draw the shape of the sound and see it on-screen.**
2) **Go for good library facilities – you should be able to assemble new libraries of sounds quickly and easily and store either complete or partial set-ups with ease.**
3) **A 'Randomize Sounds' is very useful. This sets up a basic sound for you to tweak up to your hearts content and often provides inspiration on dull rainy days.**
4) **Unless you like leaping around the room or have rubber arms you would be well advised to go for software with an 'audition' function; you can play the sound on the instrument from the screen, usually via the mouse and at any pitch and velocity.**
5) **Finally, make enquiries as to whether there have been changes to the internal memory of the synth since the soft ware was launched. In the case of the Roland D110, there have been no less than 10 updates to the internal memory and only certain editions will run with the majority of voicing software. Smacked botties for Roland from a host of irate programmers and users!**

CAGED ARTISTS

And so on to this month's reviews. There is voicing software available for most popular synths and modules; perhaps one of the most widely used is the *Caged Artist* range from the Stateside software house 'Dr T'. More importantly, they also have probably the widest range for the Amiga. We take a look at three closely related editors that cover the Roland range of very popular synths; namely the D-50 and its rackmounted version the D-550, the D-110 tone module plus D-10/20 synths, and the older but very popular MT32. They will run on any MIDI interface. The MT-32 is a good argument for having voicing software as it has a volatile memory. In other words although you may program away to your hearts content, as soon as you switch the unit off all your work disappears into thin air (an 'empty 32' anyone?)



Left: **Shuffle sounds around and re-vitalise your D10 with the Caged Artist voice librarian.**

Jokebooks

All three programs are well and amusingly documented (when was the last time you read a manual that told you one of the goals of ▶

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the program was to make the manual unnecessary?) and go quite a long way into describing the sometimes confusing terminology. They have many safeguards and highlighted functions throughout that keep you informed as to whether or not the sound or collections of sounds has been edited and not stored or whether it in fact is in the tone list but not in the instrument. All sounds that are currently being used are highlighted.

In this way, coupled with the documentation, you are never left in any doubt to what you are actually working on. These are complex instruments and the compatibility between similar models is pointed out, along with the differences in terminology and some very amusing comments on Roland's incompatibility in some cases: the lack of full multi-timbral access on the D-10/20 is likened to choosing Dan Quayle as VP!

In the Mode

As well as setting up the instruments as far as tones, performance set-up and drums go, they also set up the built-in reverb units in these instruments. The software works in various areas, called modes, each one having its own screen. The System mode is concerned with setting up the basic MIDI channels and what is quite a sophisticated MIDI thru software switch which can be set to filter and alter incoming notes for re-transmission. It will also reset the colours for the displayed and set the way in which the mouse can 'audition' the sounds. All system configurations are saved to disk.

Timbeerrrr!

On first loading up the software jumps to the Timbre Edit/Tone Bank page, which is a listing of all the voices (Timbre = voice number in Rolandspeak) and here is where you can call in the sounds either from disk file or from the instrument itself. The voices can be swopped around in their respective bank positions and will in some cases shuffle themselves around to accommodate for the changes in position.

The D110 has two banks/files and you can swop the display between them and make up your own bank of sounds. You can also load in sounds that have been transferred to the synth's memory from the additional memory cards. Thus it is possible to download the contents of a memory card to the program and hence to a disk file. So if you have a friend who doesn't mind you 'borrowing' 45 quid's worth of sounds... freebie sounds to play with! What is termed by Roland as a 'Patch' is in fact a set-up of eight separate voices. In this way 'patch bank' mode is similar to timbre bank except that you can swop the set-ups around. A nice extra with the D-110 editor was an extension to the mouse 'audition' function which can play a scale of your choice and has the ability to send modulation controls (or indeed any other designated effect: pitchbend, aftertouch, etc, etc.)

Creation

The nitty gritty of any voicing software creating the sounds themselves. As you may or may not know, the system that Roland use for this series of synths is called LA, standing for Linear Arithmetic. In a nutshell it works by combining up to four 'partials', short bursts of sampled sounds or waveforms. Each partial can be shaped up how you like and the format that the combination of them can take is also variable, known within the program as a 'structure'.

The *Caged Artist* programmers display the full number of variable parameters for each partial as a separate page complete with a diagram of the partial combination and a graph of its shape for both the filtering and amplitude which can lead to some fairly hectic screen flipping in creating the sounds. Each page can be muted if you wish to work on each partial independently.

You can change the shape of the sound by either altering a parameter numerically or by dragging the corners of the graph about. Further to this, each of the partials can be 'scaled'; that is, given some bias towards the upper or lower end of the keyboard and to help you with this there is a graph above a keyboard which again you can pull about. It's all good complex stuff even with the displays and so there are several brain saving features you help you on your way.

You can start from scratch with a 'randomize' which will alter the parameters by a specified amount. This is expressed as a percentage so you can vary its overall effect from gentle to manic. To generate slight variations to the tone you have you can mask it's overall effect by specifying the areas which the random feature will apply to. It is a very well thought through and versatile feature. If you don't like what you hear at any time you can revert back by hitting the ever-useful undo command.

All the main menu commands are accessible by either clicking them with the mouse or from the function buttons and again the program keeps these on permanent display to save you thumbing through the manual. You can also copy partial set-ups from other tones to create a starting point or to copy forward a sound you have created in order to fatten it up. Once you have saved your sound you can then move to the Patch edit mode and assign the pitch, fine tuning, stereo position, upper and lower note limits, reverb type and time, pitchbend range and output level. Any changes you make that you don't like are annulled by the undo button. There is also the possibility to edit individual tones in a similar manner if they are not part of set-up. Drums are mapped – that is assigned to individual notes and given stereo positions from another screen.

Good Stuff

The general verdict was that these are some of the most user friendly voicing programs that have so far graced the Amiga Format music desk. Even if synthesis is a complete fog for you you don't really need to know too much to get to terms with this. They will certainly make more sense of the instruments than hours of fiddling with the manual in one hand and stabbing at the front panel with the other. Included on the D-110 disk is a converter program to convert MT-32 sounds to D-110 as near as possible. My only small, and it is small, quibble was that it would have been nice to have the graphs for the sound partials superimposed as I found that flipping from one screen to the next I lost track of what I was doing. If they could somehow be superimposed with the operative graph in solid line and the others in faint then they would come close to being 100% faultless.

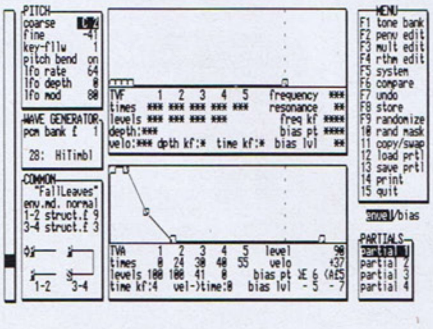
There are *Caged Artist* programs for most popular synths and in future issues we shall consider others in this range along with all the other music software that is fit to review.

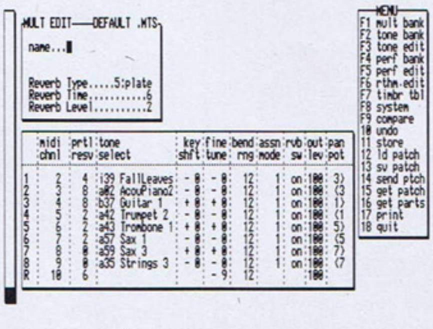
With a bit of luck we should looking at a new sequencer for the Amiga next month if we can get it under the microscope in time. If you feel like writing in meanwhile, please take a quick peek at our new address.

DR T'S 'CAGED ARTIST' VOICING SOFTWARE

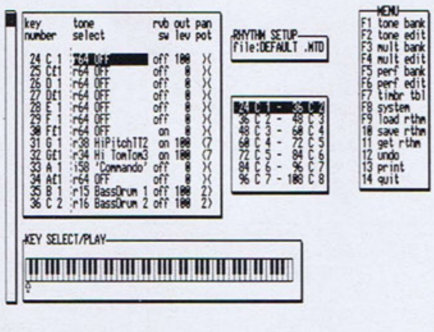
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Below: **No problems in accentuating the sounds to follow the pitch of note you are playing – notice that the function menu stays with you all the time.**





Above: **Grab a graph and drag it around – if all else fails you can always make for the randomize features to create some brand new D10 sounds for you.**



Above: **Now, shall I put the snare drum in my left ear and the cowbell in my right? These and other vital decisions are made simple on the Rhythm editing page for the D10.**

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AMIGA BASHER?

I am considering purchasing either an Amiga 500 or an Atari STE and I was wondering whether you could answer the following questions to help me decide what computer I should choose.

1. Firstly, are Commodore planning to update the A500 to compete with the new super Atari ST, the STE? How well do they compare?
2. Besides memory, what are the differences between the 500 and the 2000. Has the 2000 got extra ports on the back of the machine?
3. Can an A500 be converted into a 2000 by means of a megabyte RAM expansion and an autobooting hard drive?
4. Are Commodore planning to release any new Amigas? I have heard rumours of an Amiga 3000.

Anonymous

1. I'm sure every person that has seen Atari's STE will agree that it isn't a case of Commodore enhancing the Amiga to compete with the Atari, but the other way around. The STE is a nice machine (I'm sure many people will rush out and buy one!), but it still fails to bring the ST up to a similar spec to the Amiga.

For starters, although the STE has a 4096-colour palette, the machine can still only display 16 on screen at one time (although raster tricks can solve this). The STE blitter is a fairly basic beast that is rendered almost useless due to the lack of many basic blitter functions such as barrel shifting etc. The Amiga blitter has many of these operations and more besides.

The other enhancements to the STE are the provision of true hardware scrolling and a new, enhanced sound chip. While hardware scrolling is nice (the Amiga also has it), it is rather memory hungry and therefore most games programmers steer well clear of it anyway, prefering instead to use the blitter for scrolling.

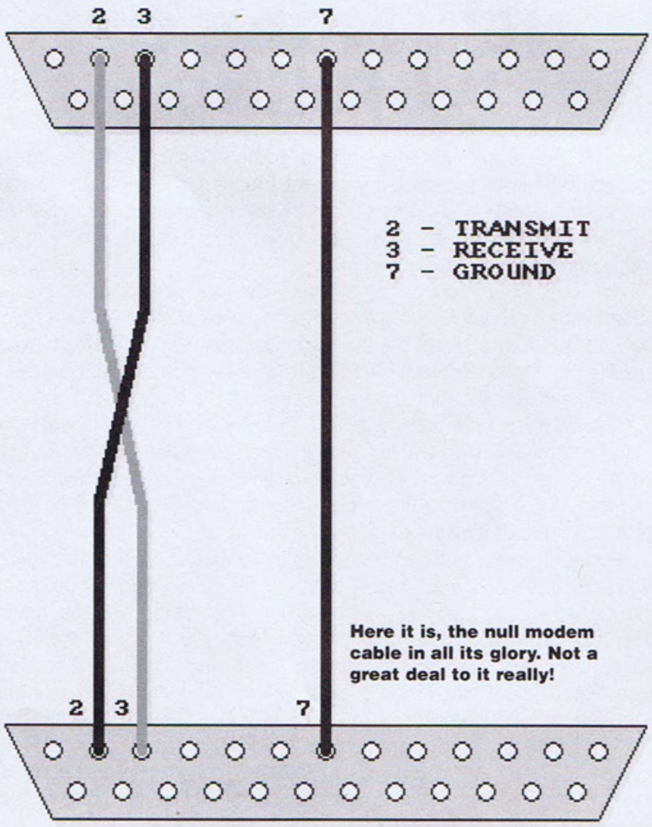
The STE's sound chip is indeed an impressive-sounding beast, but it is severely limited due to the fact that it will only operate at fixed sample rates, unlike the Amiga sound chip. This means that it isn't a great deal of use for sampled instruments within music as a single instrument sample cannot be played at different pitches (apart from the four fixed sample rates).

2. The 2000 is considerably more expandable than the 500 due to the inclusion of expansion slots inside the machine's large case. Most professional add-ons such as transputer cards, Unix boards and high resolution graphics cards usually only appear on the 2000, so if you need access to such devices, then the 2000 is the one to go for.

Other differences between the 2000 and 500 are that the 2000 comes as standard with 1 Mb of RAM, has a battery-backed clock and can accept extra floppies and hard drives within the 2000 system box.

3. Indeed it can! Pacific Peripherals produce a Sub-System for the 500 that provides the machine with two 100-pin Amiga Bus slots. Unfortunately, quite a few cards (such as NewTek's Video Toaster) do not use these slots and therefore you cannot use all 2000 cards. Contact Pacific Peripherals on 01 208 0072.

4. Rumours abound of quite a few new machines on the horizon. First to arrive will be the new A2500/30 (a 68030-based A2500), (fairly) closely followed by the much awaited A3000 ('030-based again). Rumours have also be circulating of an Amiga portable and a handheld Amiga games console. So far, no details are available on these two machines.



Here it is, the null modem cable in all its glory. Not a great deal to it really!

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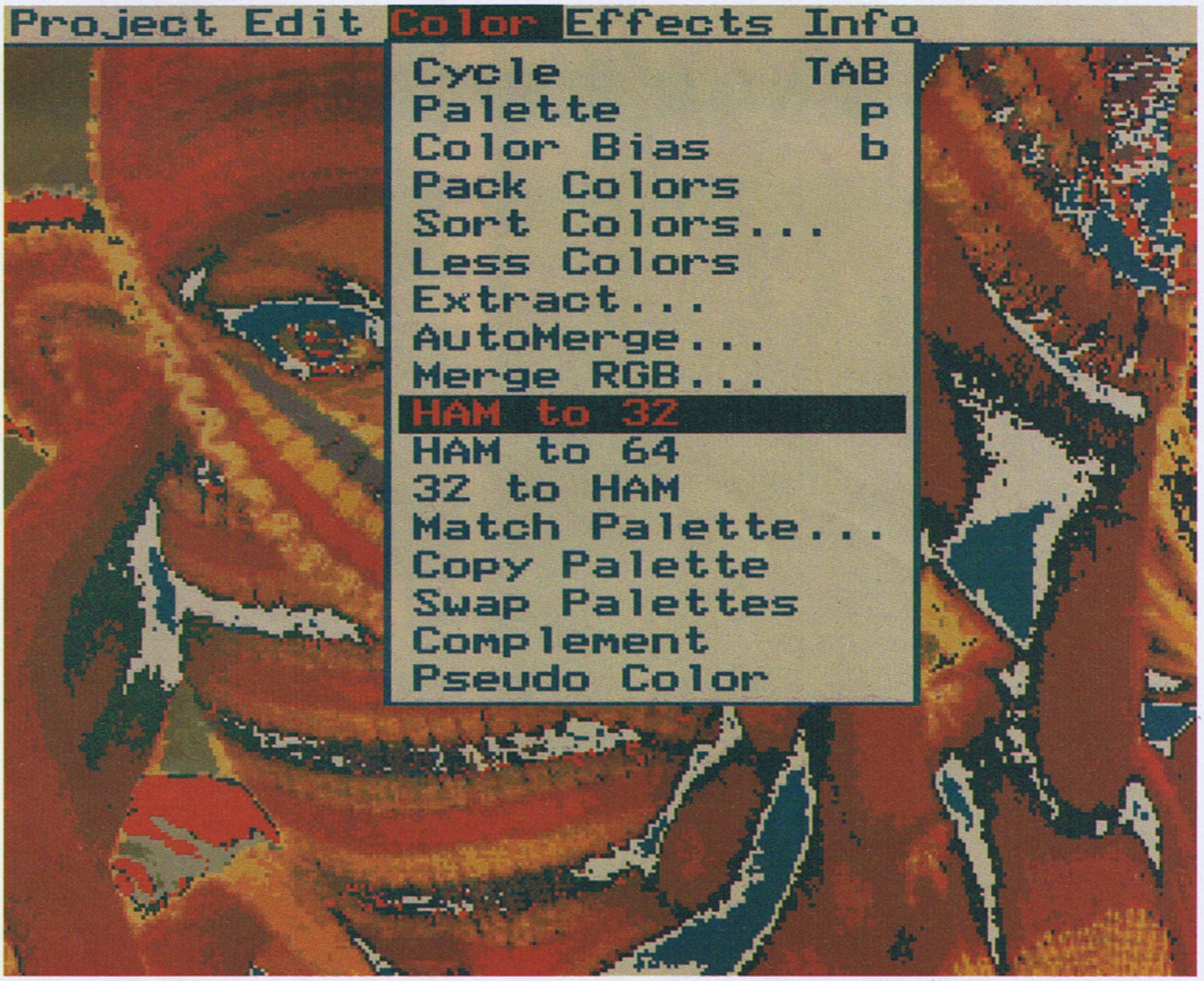
I wonder if you could help me by answering a couple of questions. Firstly, what is a datalink/null modem cable? I have seen them mentioned in reviews of some of the more recent games (such as *Stunt Car Racer, F16 Combat Pilot* etc). How much do these little devices cost?

Secondly, what is a Copper List and what does it do? I'm forever hearing Amiga technical people waffling on about them, but they never actually explain what they are talking about.

Anonymous

A null modem/datalink cable is simply a serial cable that provides unbuffered communication between two machines (regardless of model or make) that support the RS-232 connector. Quite a few companies offer them for about £15, but you could make one yourself for a lot less than this.

All you need are two 25-pin connectors (of appropriate gender) and a length of cable containing at least three separate lines.



***PixMate:* probably the most useful piece of graphics software after *Deluxe Paint 3*!**

Now just solder up the three lines as shown in the diagram below. Note that two of the lines actually cross (pin 2 on connector A goes to pin 3 on connector B and pin 3 on connector A goes to pin 2 on connector B).

A 'Copper List' is a list of instructions that control the operation of the Amiga's Copper graphics co-processor. The Copper is a simple, but very powerful co-processor that carries out its operations according to the position of the scanline on the monitor. It is this chip that allows the Amiga to display multiple screens with different resolutions and colour palettes.

The Copper has its own programming language which consists of three commands: WAIT (Waits for the scanline to reach a particular part of the screen), MOVE (Moves a 16 bit value into a hardware register) and SKIP (skips the next instruction if the scanline has already reached a particular area of the screen). A Copper List is basically a program built up from these three commands. Although these three commands seem a little limited, a great deal can be achieved using them. A typical Copper List effect is multi-coloured horizontal banding on the screen.

NEW MODE OF WORKING

So you're the proud owner of a large collection of digitised HAM pictures. Although HAM is all very nice if you want to impress your friends, if you wish to work with HAM pictures seriously within a package such as *Deluxe Paint,* then you're going to have to convert the pictures into a more usable format.

The best way of converting pictures between HAM and 32 colour mode (and just about every other display mode) with minimal loss of picture quality is to use one of the two big image processing packages available for the Amiga, *Pixmate* from Progressive Peripherals and Software, and *Deluxe PhotoLab,* from those nice people at Electronic Arts.

Converting a HAM picture to 32 colours with *Pixmate* is simplicity itself. Firstly, load in your HAM picture and then press the right mouse button to bring up the menu strip. Now just enter the 'Color' menu and select the 'HAM to 32' option. After a few seconds, your picture will be converted before your very eyes.

Achieving the same results with *Deluxe PhotoLab* is a bit more involved. Firstly, run the 'Colors' program on your *PhotoLab* program disk and then load in your HAM picture. Next, bring up the menu strip and select 'Sort On –> Population' from the 'Color' menu. This will sort the 16 HAM colour registers according to which are used most. Next, select 'Set To –> 320x256' from the View Modes menu if your HAM picture is non-interlaced, or 'Set To -> 320x512' if your picture is interlaced.

After checking to make sure that the operation you have selected is really what you want, *PhotoLab* will ask you the sensitivity of the colour reduction algorithm: for best results, select 'High'.

AMIGA A1250?

While rummaging around inside my Amiga 500, I noticed that both the keyboard and disk drive are self contained units that are attached via snap-on connectors. This means that it would be very easy to house them separately (like the 1000 and 2000). Do you know of anyone who sells a compete remodelling kit for the 500?

M. Pearson
Inverkeithing, Fife

I too have been trying to locate such a conversion kit for quite some time. As far as I am aware, no such kit is presently available in this country (correct me if I'm wrong!) I'm told that several kits are available in Germany but these have yet to reach our shores. With such a glaringly obvious gap in the market, I'm surprised some enterprising company hasn't come up

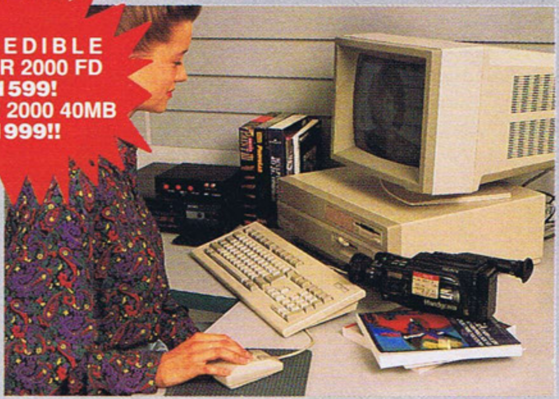
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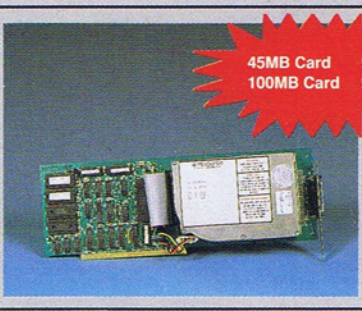
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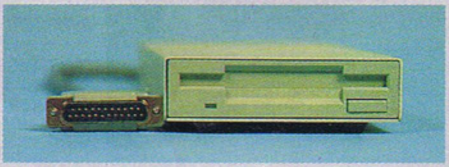
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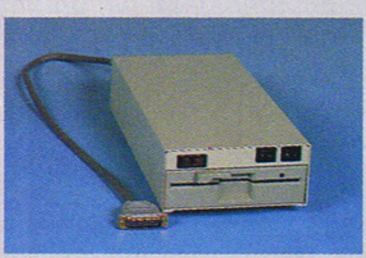
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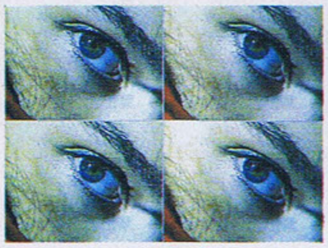
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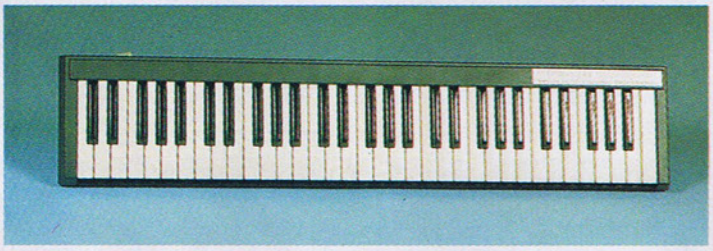
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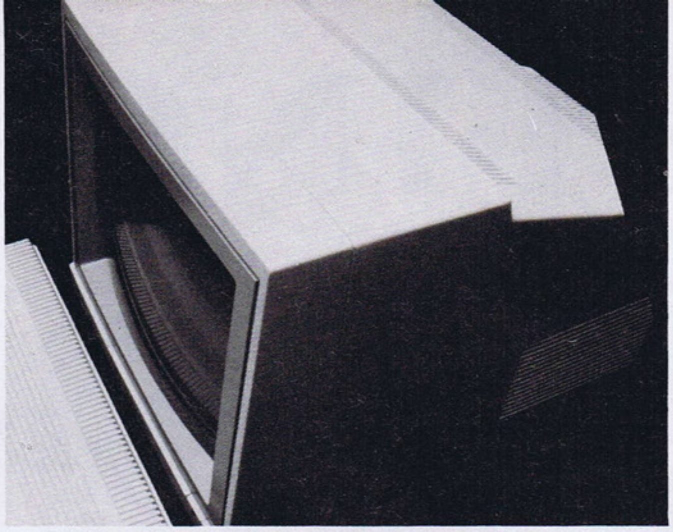
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MEMORY AND MONITORS

Having recently bought an Amiga 500 and second drive, I've realised that the machine needs at least a megabyte for serious use. I am therefore considering buying a RAM expansion. Looking through the adverts in *Amiga Format,* I have noticed quite a few companies advertising 1.8 Mb internal RAM expansions for the 500.

Firstly, is it safe to use such a high-capacity board with the 500? Is a version with a battery-backed clock worth buying? Finally, do these 1.8 Mb boards bring your machine up to 1.8 Mb total or 2.3 Mb?

My second problem concerns monitors. There seem to be so many different types on the market, all offering different features. I understand that Commodore have now stopped producing the 1084S and have reverted back to the mono 1084. Is this true?

What are the differences between the Phillips CM8833 and the CM8852? Is the CM8852 capable of accepting stereo input from the Amiga? Which monitor do you recommend?

S Lawson
Ulverston, Cumbria

Don't worry, the extra large RAM boards are perfectly safe and will do no harm to your machine. A battery-backed-up clock can be very handy but, if you're lazy like me, you'll probably stop using it once the initial novelty has worn off. As for the RAM board's capacity, a 1.8 Mb board should knock your memory up to 2.3 Mb.

Firstly, Commodore do indeed seem to have stopped shipping the 1084S. When we recently bought some new monitors for use in the *Amiga Format* offices, we recieved a new type monitor called the 1084D. This new type of monitor is the same as those sold with the Amiga in the States and uses the more standard 9-pin D connector.

The difference between the CM8833 and the 8852 is that the latter provides a higher display resolution than the 8833. If you can afford the extra cash, then go for the 8852 in preference to the 8833. The 8852 is indeed stereo.

We in the *Amiga Format* offices have a combination of different monitors. Andy and Maff's Amigas use the 1084D and the mono (mono sound, not monochrome) 1084 respectively, while my Amiga 2000 uses a very posh Taxan 770 multi-sync monitor (which no one is allowed to touch, I might add!) If you can afford it (the cheapest multi-sync is about double the price of a 1084!), a multi-sync is worth buying just so that you can take advantage of the new ECS screen modes (when the ECS is finally released). If you can't afford a multi-sync, then the CM8852 is a very good second choice. Look out for a monitor round-up in a future issue of Amiga Format.

BY YOUR COMMAND

Although Workbench 1.3 offered us average users a whole bunch of new (and often useful) tools to further enhance those long hours spent in front of our Amigas, the usefulness of several of the new utilities were rather more obvious than others. One such utility that probably ended up being forgotten about was the CMD command. What does this little chappie do, and what use is it? Read on for the answer.

The CMD command is a little 'patch' program that is used to redirect what would normally be send out to a parallel or serial output device (such as a printer), to a separate disk file. This can be particularly useful if you wish to print out several files in the shortest amount of time. Using it, you could load each file into your word processor, print it out, load the next, print it out etc. All these files would then be sent to a disk file that can be taken along to another Amiga and printed out in no time at all, complete with all escape code, the works.

CMD can be run from either the Workbench or from the CLI. For best results, the command is best suited to the CLI. The Syntax of the command is CMD <Device Name> <Output Filename> [OPT s/m/n] (the OPT parameter is, er, optional). The Device name can either be serial or parallel (note that you cannot use PAR: or SER:). The Output Filename is the filename of the file that the output is to be written to (obvious really).

The 's' option tells CMD to ignore what is called the printer 'short initial write', which is basically a reset signal sent by t he printer to inform the printer driver that the device is ready to receive data. This signal isn't needed for text files, so always specify the 's' option.

The 'm' option is used if you wish multiple files to be written to the same file, one after another. If this is not specified, CMD will overwrite the last file that was written. You can break out of this by pressing <CTRL> + <C>.

Finally, the 'n' option enables notify mode. Notify mode is used to keep you informed of progress during the file transfer.

N Newbury
Bristol

MEMORY MATTERS

Quite a few of the more inquisitive among you have asked us to print a memory map of the Amiga. Well, always keen to listen to your requests, here's the Amiga memory map in all its glory.

ADDRESS RANGE	DESCRIPTION
000000-07FFFF	CHIP RAM (512k)
080000-1FFFFF	ADDRESS COPY OF CHIP RAM
200000-9FFFFF	RAM EXPANSION SPACE (Upto 8 Mb)
A00000-BFFFFF	CIAA AND CIAB
C00000-C7FFFF	CPU RAM (512k) 500 and 2000 only
C80000-DBFFFF	* RESERVED FOR FUTURE EXPANSION
DC0000-DEFFFF	BATTERY BACKED UP CLOCK. 500 and 2000 only
DF0000-DFEFFF	* RESERVED FOR FUTURE EXPANSION
DFF000-DFFFFF	CUSTOM CHIPS
E00000-E7FFFF	* RESERVED FOR FUTURE EXPANSION
E80000-EFFFFF	EXPANSION SLOT DECODING
F00000-F7FFFF	* RESERVED FOR FUTURE EXPANSION
F80000-FBFFFF	ADDRESS COPY OF KICKSTART ROM (256K)
FC0000-FFFFFF	KICKSTART ROM (256K). Amiga 500 and 2000 only

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COPING WITH FAILURE

We all know that AmigaDOS is a powerful beast, but why does it have to be so painfully unfriendly? When things start to go wrong, the Amiga can be about as friendly as a Khmer Rouge public relations officer.

Every now and then, something goes wrong during a disk operation. From the Workbench, when something goes wrong the Amiga will display an error number and a short description of what went wrong along the Workbench menu script. If you're a CLI dabbler, then this error report will be written straight into the CLI window that the task was launched from. Anyway, to make things a bit clearer, here's a rundown in plain english of what those error codes are actually trying to tell you.

103 insufficient free store

This error occurs when you try to load a program that requires more memory than is presently available. Try shutting down any tasks that are currently running and closely down any windows that aren't needed.

105 task table full

You're really pushing the Amiga if you manage to get this error. The Amiga can only manage 20 CLI's at any one time. As soon as you try opening any more, AmigaDOS will complain bitterly and refuse to open any further CLIs.

120 argument line invalid or too long

This error appears if a program is unable to make sense of the parameters you have passed to it.

121 file is not an object module

You've just tried to load a file that is not a program. Only programs can be run by directly entering their name. If a program that should work fails to work, check to make sure it isn't a batch file (or it hasn't become corrupt).

122 invalid resident library during load

Something went wrong when the program you have loaded tried to open or load a system library.

202 object in use

To prevent one program from modifying a file that another program is using, AmigaDOS automatically locks the file out of reach of other tasks until the file has been closed by the program that is using it. If you get this error, another task that you are running is using the file.

203 object already exists

You've just tried to copy (or rename) a file to a filename that already exists. If you get this error during a copy operaion, then the file that has the same filename as you've tried to use is protected against modification (use the AmigaDOS 'protect' command to unprotect it).

204 directory not found

A program (or CLI command) has tried to access a directory that doesn't as such exist. Check to make sure that you haven't made a typing error. If everything seems OK, check the disk's directory (using DIR) to make sure that you the directory does exist.

205 object not found

Very similar to error 204, except that this error applies to both files and directories. Check errors as above.

206 invalid window description

A program attempted to either open a window that was too big for the maximum display size (depending on the screens resolution) or by passing window parameters in an incorrect format.

209 packet request type unknown

If you get this error, then you've got problems – because there's not a great deal you can do about it. This error only occurs because of programming errors (bügs).

211 invalid object lock

Another programming error. A program created an invalid object lock code (don't worry, just let programmers worry about such things!)

212 object not of required type

This error usually occurs when you accidently mistake a file for a directory (or vice-versa). For example, if you try to load a directory into a text editor, or you try to copy multiple files to a file (when it should have been a directory).

213 disk not validated

The disk that AmigaDOS is trying to access has become corrupt, and the Amiga is unable to either load its disk validator (found in the Workbench 'L' directory) or the validation failed altogether. Try using the DiskDoctor program from the CLI.

214 disk write-protected

AmigaDOS tried to alter the disk but was unable to do so because the disk is write protected. No prizes for guessing what you've got to do to solve this one!

215 rename across devices attempted

Although the AmigaDOS rename command can also be used as an alternative to the copy command, this operation can only take place with the confines of the source disk. It is perfectly valid to rename a file that is within one directory, giving it both a new filename and path (this is more of a 'move' operation than either copy or rename). However, if you try to rename a file giving it both a new path and new device name, this error will be produced.

216 directory not empty

AmigaDOS will only allow you to delete a directory if it is empty. If files still exist within it, this error will be produced. If you still wish to delete the directory, try using the command DELETE MyDIR ALL (where MyDIR is the name of the directory to be deleted). This command will delete all files and directories within the directory that you wish to delete before eventually deleting the directory itself.

218 device (or volume) not mounted

You've tried to access a device that is not presently installed in the system. Check to make sure that you haven't typed the device name incorrectly (SIR: instead of SER: for example). If everything seems OK, refer to the device's manual about installation procedure.

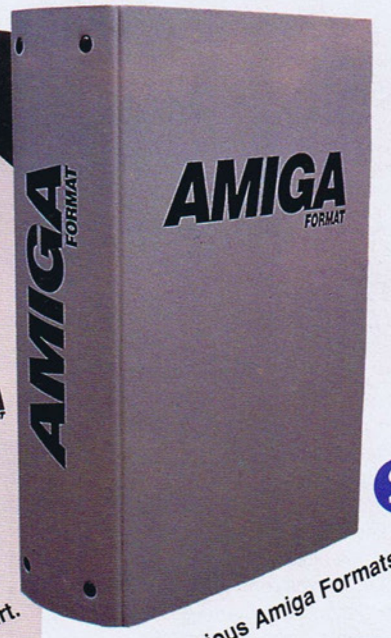
Well, that's about as many as we can squeeze into one issue. Check out next month's *Amiga Format* for a description of the rest of those infamous AmigaDOS error codes (219 to 232).

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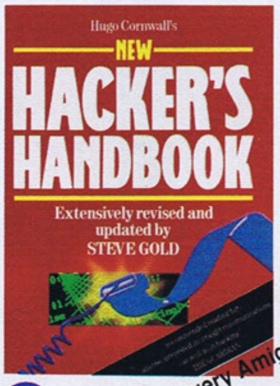
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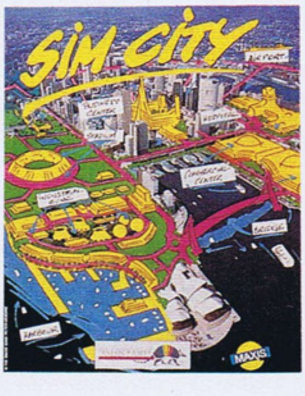
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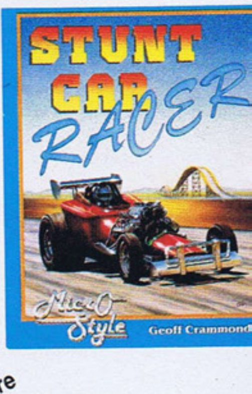
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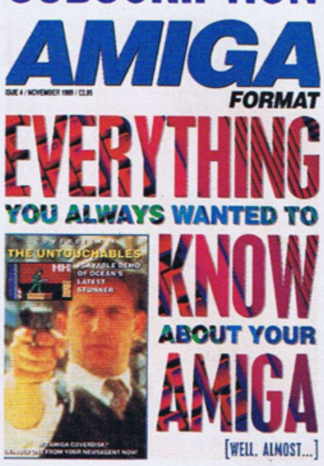
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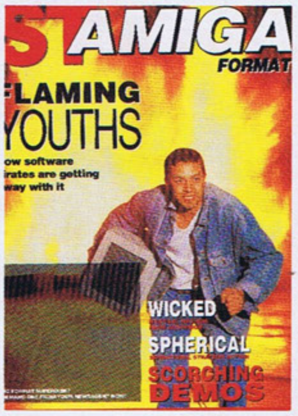
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THUNDERBIRDS MISSION 2

Got through the first stage thanks to the tips in Issue 5? Can't get any further? Read on, McDuff!

Gordon needs an aqualung and an American Express (TM) card. Alan needs an aqualung and a bottle of radiation pills.

Take Alan left and up from TB4. When you see the captain take the radiation pills walk to him and he will give you a blue card. Switch to Gordon and go left, down and right: keep going right until you come to the radiation pills, then take them.

Carry on going right until you can go down. Go down and carry on until you see a room with two computers in it whic are exactly the same, one on the left and one on the right. Go to the one on the left. Now bring Alan to that place and use the American Express (TM) card and the blue card to shut down the reactor.

Take Gordon left until he can go up. Go up, continue going left until you can go down. Go down: you should now be underwater. Go left as far as possible, then go right as far as possible leaving the doors open as you go. Walk left, holding down return as you go, and when the water has gone go down. Then go left (don't worry when you fall down the hole) and keep going left and you will go back up through the hole.

Keep going left until you can go no further and then go right as far as you can, leaving the doors open as you go. Now go left holding return (the sub should surface). Now go up, left and carry on going left until you can go up. Go up, then right until you reach TB4. Job done!

Simon Hadley
Nuneaton

STRIDER

Having difficulty with this excellent Amiga Format Gold rated game? We're not at all surprised, so here's the solution.

You start off by flying in on your futuristic hang glider. When you land, jump up and destroy the flying object above you then walk along and destroy the guard. Walk along a bit more and destroy the flying object which should be above you: it should leave behind a pod which falls to the ground. Get near to it, strike it, collect it and a robot drone should start to orbit round you.

Walk along and destroy the other guard then walk along a bit further and crouch down to kill the small guard. Keep on walking a bit further, jump the gap in the floor, go up the side of the hill, destroy the two guards then get on the flat part and jump up. You should grab hold of the bottom of the platform which is located above you.

Wait until the orbiting drone gets close to the guard and press fire. Move along until you are just out of range of the laser turrets, wait until the drone gets close to the turrets and press fire again. Keep doing this until all the turrets are destroyed.

Crawl to the top and destroy the guard then stop just out of range of the next set of laser turrets. Destroy the turrets, then jump onto the platform opposite you and walk off of the end. Keep walking and fall off the cliff, keep walking and wait under the platform: ignore the man on the platform until you get underneath it.

When the man attacks, crouch down. Keep pressing fire as he rolls toward you and keep this up until he's dead. Stay under the platform because the roof will collapse in flames. Once they have disappeared jump up on the platform, then onto the next platform above you and then finally onto the one above you once again.

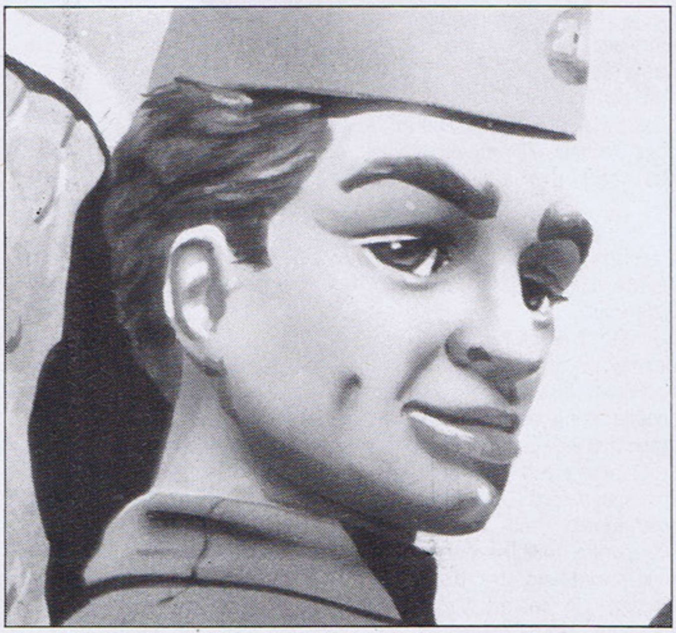
Take out the two guards and the turrets, go up and destroy the guard above you, then carry on and destroy the guard before jumping left onto the platform and collecting the long sword. Jump back right and continue over the hill and down the other side.

Drop off the end and quickly move close to the largest hole in the ground and crouch beside it. Once the baddie starts to come up through the hole, keep hitting the fire button until it's destroyed. Then drop down the smaller hole and as you're falling press left on the joystick and get ready to destroy the flying nasty.

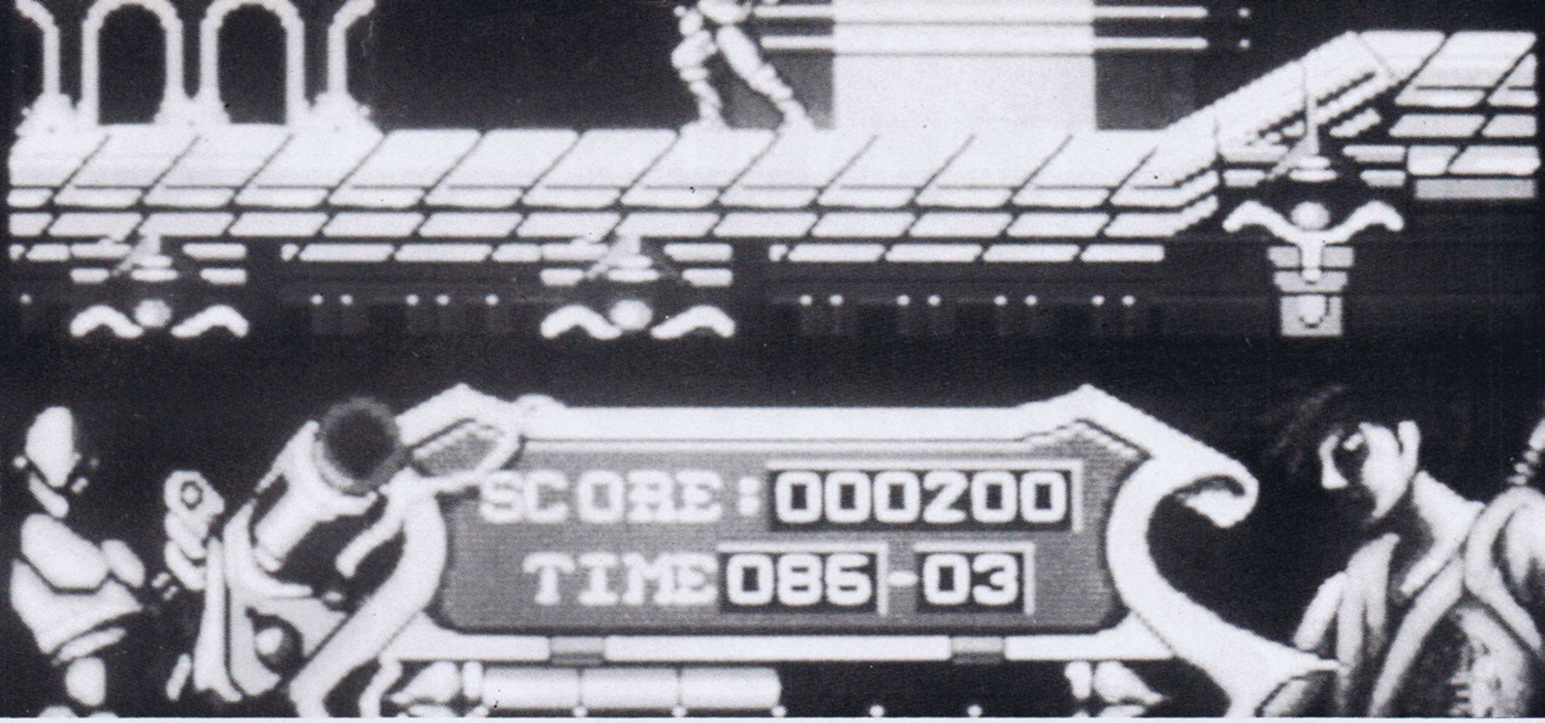
Destroy the other guard once you land and then go and collect the energy pod. Continue right until you're under the green platform. Now make sure you use up all your long sword swings before continuing until the screen stops scrolling. When the sickle monster gets close to you jump over it and walk up the side of the wall and onto the platform on the left. Collect the long sword pod, jump back onto the wall and move back to underneath the platform. When the sickle monster comes round again, keep pressing the fire button and you should get enough hits on it to destroy it.

Level Two

Keep walking until you come to the platform with the pod (destroy the three dogs as they come towards you by crouching and timing the press of the fire button) and collect the long sword. Jump off the platform and keep going right. Just past the green scenery a mechanical gorilla will appear: move back just out of its range,



If you needed the tip for Mission One of *Thunderbirds* in Issue 5, then you may find the advice for Mission Two useful!



If you don't mind a good long read, the full solution of *Strider* on these pages is invaluable!!

crouch and press fire whenever it comes towards you and continue until it's destroyed.

Continue right until you arrive at the wall and then crawl up it and jump onto the left side. Destroy the crawler on the right side and then jump to the right. Now destroy the crawler on the left and jump back to the left. Keep moving up and ignore the crawler on the right. Kill the guard at the top and jump onto the rotating platform thing.

Go round with it and jump off onto the stationary platform at the top: walk right and crouch when the flying guard comes on and kill him. Walk down the side of the hill, taking care not to trip the mines that are there. Once you get to the bottom, get close to the gap and jump right. Walk right (destroying the dogs) as far as you can and then jump onto the platform that's diagonally up from you: do the same for the next platform. Destroy the droid, jump onto the platform above you, destroy the droid and jump onto the platform facing you and then onto the next one facing you, walk onto the flat part and jump onto the platform above you and dodge the bombs which fall on you.

Jump onto the next platform above you and go to the far right. Jump up again and you should be behind a guard: destroy him and walk to the left, destroying the ballet dancers. Keep going left and take out the turrets, then walk right along the platform to the end and you'll have completed Level Two.

Level Three

Walk down the side of the hill and when you get near the bottom jump to the right to avoid the killer fish. Go up and over the hill and then go down a bit and jump onto the platform opposite. Walk along and dodge the boomerangs which the Amazon woman is throwing at you, and destroy her.

Climb up the side of the cliff and destroy the woman above you. Walk left and jump onto the platform above you and walk along a bit more and destroy the women and then jump onto the platform above you and kill the other woman. Jump onto the platform above, kill the woman and do the same again then walk along and kill the woman facing you and then jump across the gap and destroy the next four women as you walk along.

Walk down the side of the cliff and jump onto the platform facing you. Destroy the woman at the top, walk along and destroy the next two women and then go to the right and destroy the killer fish. When you've done that destroy the dinosaurs, walk along and destroy the woman and then walk a bit more and there should be two platforms above you: jump onto the first platform and wait near the diagonal part in the platform. A huge dinosaur will jump out at you. Move back when it fires lasers at you and then move forward when it moves back. When it jumps at you press the fire button rapidly to destroy it and then get ready for Level Four.

Level Four

Destroy the flying object, then the next three laser turrets and then another flying object. Collect the drone and walk along. Destroy the flying object and the laser turret with your sword. Destroy another two turrets and walk along. Destroy the small flying object with your sword and use the sliding technique to destroy the rest of them.

Kill the flying thing but don't bother to collect the drone, just drop through the hole in the ground. When you land, destroy the guard and collect the long sword and walk left: jump onto one of the platforms as it passes and almost immediately jump right. Jump the gap in the floor and kill the guard and then walk along until you see another gap in the floor: get very close to the edge and then jump right and you will land just on the edge of the gap.

Collect the energy pod and climb up the side of the wall. Destroy the guard with your sword and destroy the next two guards as well. Climb to the top and destroy the two robot droids and walk right: climb the wall and destroy the robot droid at the top with your sword.

Walk along and drop down the side of the wall and walk along a bit more: destroy the small flying things using the sliding technique again then destroy the guard and the small flying robot. Destroy another guard, walk along and collect the energy pod. Drop through the gap in the floor and when you land you will start to orbit the huge round object: when you get close to it, strike it with your sword to destroy it.

Drop down the hole, walk along and there will be a man with a hook in his hand: don't get close or he'll hit you, but stay out of range and keep hitting him with your sword until he's destroyed. You've completed Level Four.

Level Five

Walk right and collect the long sword and then destroy the guard behind you. Jump onto the platform on your right, go to the bottom of it and then jump across onto the wall. Destroy the guard at the top with your sword, destroy the flying object above you and then destroy the guard at the other side of the gap in the floor. Jump across. Walk along and destroy the flying object, then the two guards and then the flying thing.

Walk up the side of the hill and destroy the guard at the top. Climb the wall and don't bother killing the guard: just climb up when he turns left. Do the same thing for the next guard too. Destroy the guard at the top and walk on. Collect the long sword when it appears and use it to destroy the small flying object on the other side of the gap. Then jump it and climb up the wall. Destroy the small flying objects as you move up.

Drop off the edge and use the sword to open the capsule on the other side of the gap: jump over and collect it then drop down the gap. Use the same method to destroy the huge round object that you used on Level Four. If you drop on the left hand side of the gap, jump to the right and drop off the side and you should land on a platform.

Collect the long sword and walk along, then drop off the side of the wall and crouch near the hole. When the object rises out of the ground, use your sword to destroy it. Jump over the gap, kill the guard and collect the energy pod, destroy the next guard and collect the next energy pod, walk along and jump the two gaps in the floor. Walk along and just as you pass a thin blue line in the background a huge gorilla will jump out at you. Stay behind the blue line and keep swiping at the gorilla: keep it up until you've destroyed the gorilla and completed the game!

Darren Purcell
Cheadle

BATMAN THE MOVIE

Here's a great little cheat for you: On the title screen simply press type JAMMMMM, and the screen will flip over, now when you start the game you'll have infinite lives and be able to skip levels by pressing F10.

AJ and Motormouth
of the Fremen Dublin

SHADOW OF THE BEAST

Here's the rest of the solution:

Out of the Well

Climb out of the well and go right: kick the pillars to get extra strength. After another load watch out for the dragons above dropping bombs. When you get to the castle, go past the door and jump up to get the torch, so that you can see inside. Now go back and enter the castle.

Into the Castle

Once inside go left, up, right and watch out for spaceships above you dropping bombs and then collect the extra strength. Go down, right, up as far as possible, left, down, left and collect strength. Watch out for the guys coming out of trap doors in the floor.

Then go up, right to collect all the extra strength and finally the spanner at the far right. Now go as far left as possible then down, right, down, right and fall down, left and cross bridge, down, right and watch out for the giant monkeys, down, left and keep going until you find a chest. Hit it and take the gun.

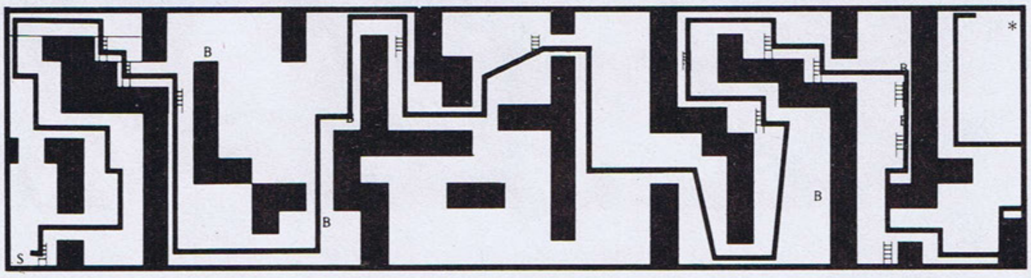
Now go as far right as possible until there is a force field, Use spanner to go through, then go up, left, down, left, up, right, down, left as far as possible then down, right, and kill the three-headed dragon.

Door to Blasting

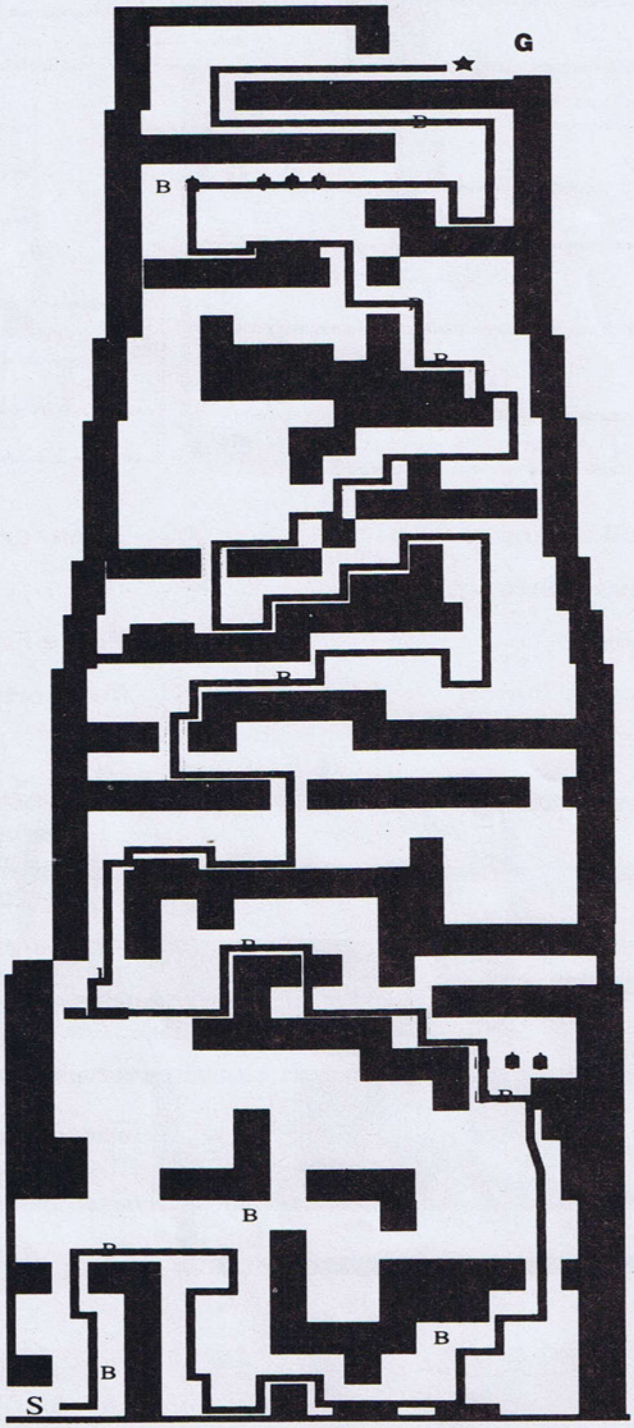
To go through the door, you must have a key, and you will now have a mask on. The game is now a shoot-em-up. Keep going right, while hitting pillars on the ground for extra strength, until you get to the giant monster. Hit the pincers above and below the tongue until it blows up.

If you have the 2nd key, go through the door to leave the castle. You will now be outside again. Keep going right, hitting the pillars for extra strength and then kill the dragon at the end. Now you'll get the message 'Congratulations, you have freed yourself from the shadow of the beast'.

Stephen Murphy
Bellshill, Lanarkshire



Batman, the Maps: Above, first level, the Chemical Works. You start bottom left and must make your way to the Joker top right. Below, the Cathedral, Level Five. Climb bottom to top.



Mark Lawrence, Stephen Murphy and Darren Purcell each pick up a coveted Amiga Format Software Voucher for their troubles this month, allowing them to save themselves £50 each! Could you do with £50 worth of software? You don't stand a chance until you get pen to paper and send in some decent maps, tips or pokes to: GAMEBUSTERS, AMIGA FORMAT, BEAUFORD COURT, 30 MONMOUTH STREET, BATH BA1 2AP.

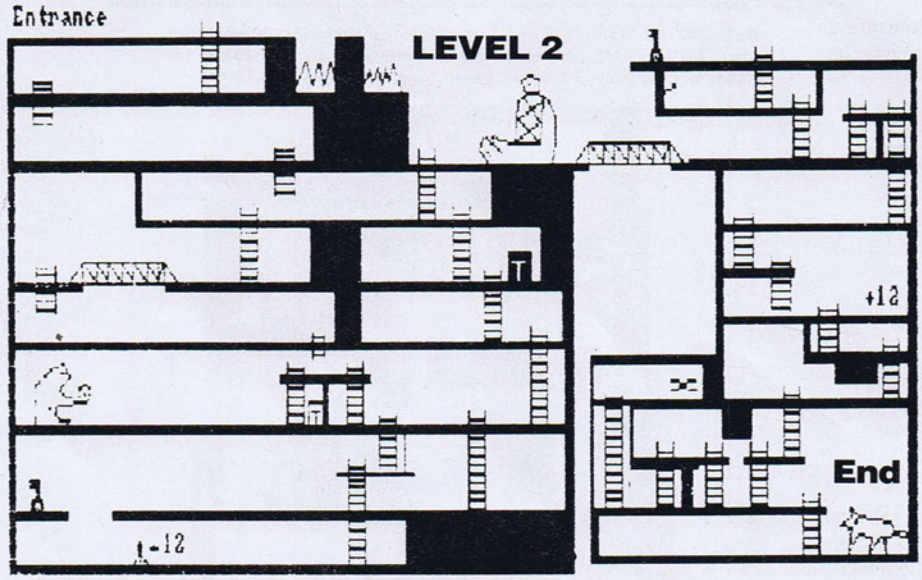
GHOSTBUSTERS II

Infinite courage on Game One and infinite slime for Game Two can both be yours by using this listing, which should be typed into Amiga Basic and run. You should then insert Ghostbusters Disk A into drive 0 and reset the Amiga using <CTRL> and the two Amiga keys. The game should load as per normal but with the above enhancements.

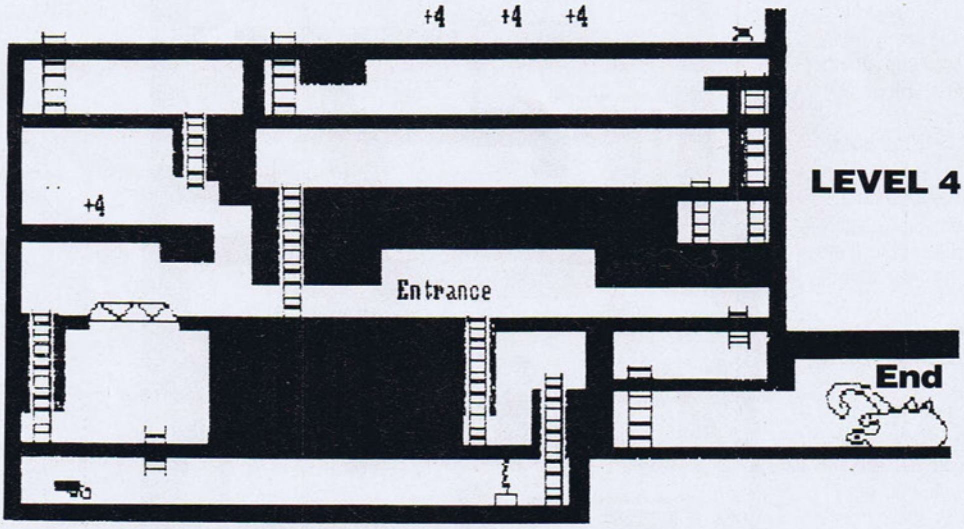
```
10 DIM CODE%(255)
20 FOR N=0 TO 47
30 READ A$: A=VAL("&H"+A$)
40 CODE%(N)=A
50 NEXT N
60 CHEAT=VARPTR(CODE%(0))
65 CALL CHEAT
70 REM TYPE IN THIS LISTING AND SAVE IT FOR FUTURE USE
80 REM THEN RUN IT AND INSERT THE GHOSTBUSTERS II DISK
90 REM AND RESET MACHINE
100 REM GAME WILL LOAD WITH INFINITE COURAGE AND SLIME
110 DATA 2078,0004,41E8,0022,43FA,0016,2149,000C
120 DATA 7200,7017,D258,51C8,FFFC,4641,3081,4E75
130 DATA 202E,FE3A,41FA,003A,2080,41FA,0014,43F8
140 DATA 0300,2D49,FE3A,700F,22D8,51C8,FFFC,4E75
150 DATA 0CA9,0007,D300,0028,6614,23FC,6100,FA20
160 DATA 0007,C534,23FC,33FC,0001,0007,C538,4EF9
```

Mark Lawrence
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FORMAT LETTERS

All your contributions to the heated debates in these pages are welcomed by the Editor **BOB WADE**. But please notice our glamourous new address for all correspondence: 30 Monmouth St, Bath, Avon BA1 2AP. Keep it lively and preferably brief to escape the infamous Origami treatment...

THE GREAT EDUCATOR

I have owned an Amiga 500, recently upgraded to 1 Meg, for 18 months. I feel confident with the machine, enough so to let my children aged seven, five and three to play and experiment with it (under supervision!)

Reading your magazine and other Amiga publications there doesn't appear to be much educational software advertised. Visiting local software shops again usually ends up fruitless. There are programs such as the *Fun School* range, but I do not feel they utilise the Amiga's full potential.

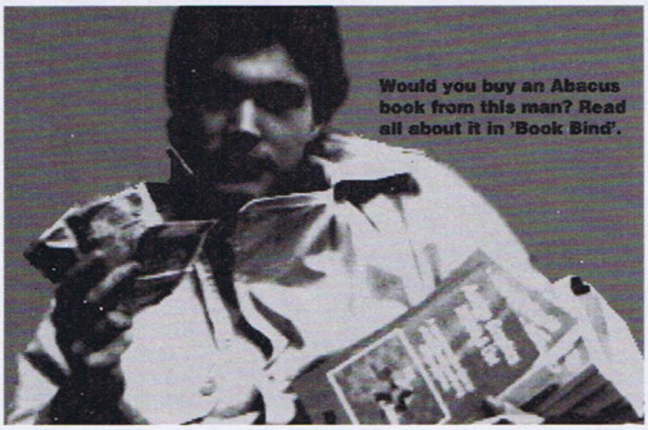
I have read that the Amiga is being bundled with the CBM Beebulator and BBC educational programs. Whilst I am considering the Beebulator and BBC programs as an option, I would like to know if a good percentage of BBC educational software will run under the emulator and how I will be able to tell if it will or won't before buying.

Is there a comprehensive list of educational software available anywhere and what standard is it?

I don't know what percentage of readers you have are adults with children, looking at this area of software, but I feel sure that a page dedicated to the subject would be a plus for *Amiga Format*.

Stephen Yale
Middlesbrough, Cleveland

Unfortunately, you are quite correct in saying that the current standard of educational software for the Amiga is below par. For starters, there is very little of it available at the moment: secondly, what there is tends to be no great shakes at using the Amiga's power: and thirdly, it tends to be somewhat unimaginative.



Would you buy an Abacus book from this man? Read all about it in 'Book Bind'.

Commodore themselves are making an effort to lead the development of decent educational software, but the process will take a while before the range that the BBC enjoys will be available.

In the meantime, apart from the excellent Amiga version of Logo reviewed on Page101 of this issue, the best advice is to give the kids a chance to play with 'proper' programs. Paint packages in particular should be easy enough for them to get to grips with, and schools very often use adventure games and word processors in the classroom.

The BBC Emulator will only run BASIC programs, which cuts out most of the best packages straight away. Don't expect too much of it. As far as lists of software go, one very good firm who will send you a pretty comprehensive catalogue are Ricketts Educational Media on 0460 57152. Another place to look is in the Amiga Directory, available on the newsagent's shelves.

FREAK-EM-UP

I am an arcade freak, and would like you to name me one arcade-perfect beat-em-up on the Amiga.

Nikhil R Sakaria
Bolton, Lancs

Two possibilities here: there's Ninja Warriors *from Virgin Mastertronic which is an arcade conversion packed with action and has a simultaneous two-player option, or there's* International Karate + *from System 3 which involves lots of one-on-one fighting and also has a simultaneous two-player option.*

PRICE OF PIRACY

On the subject of high-priced games – "Oh no, not that again" I hear you cry – the usual excuse for a £20-25 price tag is piracy – "Oh no, not that as well" – but games were this price when the 16-bits first came out and pirates weren't so well established. The thinking behind the pricing strategy must have been that we were getting over twice the power of 8-bit software so why not twice the price? If the piracy argument was true then software should be increasing in price all the time because piracy is spreading all the time, presumably taking a bigger slice out of games house's profits.

Neil Barnes
Kingstanding, Birmingham

Pricing was also due to the high initial cost of developing 16-bit software for what was a small market. Now, as the number of users grows and the development of some games like simple shoot-em-ups is easier, we are seeing the arrival of budget software at truly affordable prices. I think the £20-£25 price point will always exist because the cost of developing really top-notch games is always going to be high.

BOOK BIND

I wish to complain about an article and advert which appears in your magazine *Amiga Format* Issue 5, December 1989, Page 69, concerning Jason Holborn's review of Abacus's latest books.

Today I went to the local shop Microstore Swansea to buy two books named in Mr Holborn's article. Amiga 3D Graphics Programming in Basic priced £14.95, was priced in the store at £18.95, and Amiga Graphics Inside and Out at £18.95 was £34.95 in the store. Querying the price I rang HB Marketing and their price was £18.95 for the first book and £32.95 for the second NOT as priced in the article.

Could you give me some explanation as to why you have printed a misleading price?

MD Roderick
Tycoch, Swansea

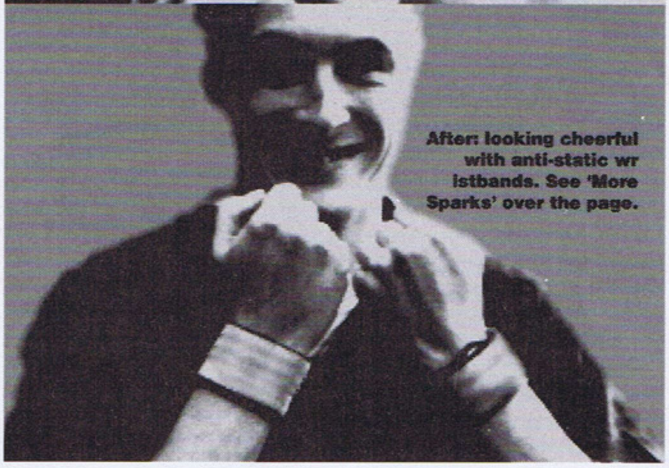
Obviously, we do our best to ensure that any prices we print are correct at the time of going ▶

to press. Usually, this involves our reviewers actually phoning up the people who sell the product and asking them what the price is.

In this case, Jason phoned up HB Marketing themselves and asked them for a price. Obviously we are all human, and somewhere along the line an incorrect price was quoted.

We apologise for any error, whether it was our fault or not, but in actual fact the prices of these Abacus books do seem to vary with different suppliers. This has confused us too in the past. And unfortunately, when the proverbial hits the fan, the prices we quote must only be taken as a guide and we cannot be liable for any errors.


Before: with plastic bags on hands, doing it the wrong way.


After: looking cheerful with anti-static wr istbands. See 'More Sparks' over the page.

AD-VERSE PUBLICITY

Yes! It's Christmas again, and what an ideal time to sell the punters computers. Well, Atari thought so, and got off early with a pretty good ad, showing some excellent trick camera work and special effects, making the advertisement work really well for the ST.

'Ah!', I thought, 'You wait until Commodore release their ad for the Amiga'. Well, when it arrived, to say that I was gob-smacked would have been the understatement of the century – it was absolutely pathetic. It has done for the Amiga what Clive Sinclair did for British transport. It showed none of what the Amiga is capable of, but portrayed it as just another hum-drum box of tricks for kiddies. As for the exciting voice-over, I think I last heard him announcing the next symphony on Radio 3.

The Amiga is one of the most exciting computers to hit the scene since the abacus, back in the early days of civilisation.

Personally, I think that Commodore have got to get their act together in a big way, that is if they wish to sell more computers. Maybe they think that the Amiga can sell itself, and it probably could, given the right software (and probably do it a lot better).

This is the twentieth century, going on the 21st, and as the Amiga is going to take many of us into the new century, why isn't Commodore showing us our future and not our past?

Roy Jessop
Welling, Kent

There are an awful lot of people who don't seem to be worried by the advert or actually were encouraged to buy because of it, because at the moment the Amiga is selling extraordinarily well. I must confess to not having seen the ad, but the descriptions I've heard of it haven't sounded too bad. As for the voice-over, that Radio 3 announcer happens to be Stephen Fry (we think!), and he's a jolly funny man and I won't have a word said against him. He is pink, fluffy, moist, warm and wonderful.

ANSWER THE QUESTION

Just what do some readers want? For a general overall view of the Amiga computing scene, I do not think that *Amiga Format* can be touched. In common with other magazines, the number of pages has also increased, and not just for the Christmas period.

The fact that the magazine split into two separate entities, from *ST/Amiga Format*, is a sign of just how much there is to review, preview, or just plain discuss in the Amiga world. The same being true for the Atari ST. Well, when one magazine used to cover both machines, and now two sell in sufficient quantity, the point is proven surely.

With that increase, it is going to mean an increase in games, probably more so than in any other area. After all, there are not likely to be all that many databases doing mega sales.

I, too, did not complete the questionnaire, but then again I am more than happy with the present contents, and volume of content. Perhaps Mr Bunker (Letters Issue 5, Page 161) should have sent in a questionnaire, in a bid to influence the future articles. Was that not one of the ideas behind the questionnaire?

Anyway guys, keep up the good work, looking after the majority of us.

Alan Lockly
Nuneaton

You're absolutely right about the questionnaire – in order for us to be able to produce the magazine you want, we have to know what it is you want. So if you haven't already filled in the questionnaire in this issue then turn to Page 104 and get it sent off to us now. We do take a great deal of notice of them. Let's face it: we want to sell more copies of the magazine and we can only do that by producing the magazine that you want to read. The Amiga scene is currently the most exciting of any home computer, and we hope to reflect that in our pages.

GO FISH

My mother thinks I play too many shoot-em-ups, and so has bought me *Fish*. She says I need to use my brain a bit more! At first I wasn't too keen, but after three weeks I'm near to completing it. I shall send you my solution for the Gamebusters column as soon as possible. I am now totally addicted to *Fish*. Don't you think it is a pity that more text adventures are not written for the Amiga.

AF rarely seem to review text adventures – is this because there are none to review?

I am hoping to be given *Journey* for Christmas. Maybe you could suggest some more text adventures that I might try.

Peter Jones
Worcester

There aren't that many text adventures being produced these days: everybody has been lured by the fantastic graphics of the Amiga to produce more graphically-oriented games. However, using icons and other short-cut systems they are still producing good adventure games. We do review them as they come out: for instance we did Keef the Thief *and* Indiana Jones the Adventure Game *in the last issue and we have* The Hound of Shadow *in this issue.*

WHERE'S DARIUS?

Please review *Darius* by The Edge for the rest of them. I got it at the Commodore Show and I haven't seen bigger end-of-level guardians on any micro. I'd never heard of it before and I bought it 'cos it had a nice box!

Neil Barnes
Kingstanding, Birmingham

We would like to review it but at the time of writing I'm afraid we have not received a copy of the game from The Edge. Hopefully we will receive a copy in the near future and perhaps squeeze it in the next issue. This is always a problem for us: we have so many games to chase up from so many software houses that poor overworked Andy Smith often has to rely on the company that produces a game telling us about it and sending it to us. For precisely that reason, most software houses employ PR people to bring stuff to our attention.

Anyway, thanks for bringing this omission to our attention and we are very pleased that you enjoyed the game so much.

PARDONNEZ-MOI?

I know we subscribed at a discount without added P and P, but perhaps for the sake of illiterate Europeans-to-be among us you can include a French tutorial column, if every month the *Format* comes in a flimsy manila envelope plastered with tape announcing *"arrive ouvert ou avarie et remise en etas"*!

Dr Stephen Qhiew
Enfield, Middlesex

Mysterious! When we last looked,

our Subscriptions department was located just down the road in Somerton, Somerset. Perhaps we are the victims of some strange new EC ruling that requires all magazines to be sent via France and inspected for obscene material when it is re-imported. Who can tell? Could possibly be MI5, I suppose.

All we can advise is that you ring the Post Office and demand to know what's going on: although I believe that in preparation for 1992 all their switchboard operators now speak Belgian...

BOARD ON-LINE

Guess what?
A new 8 Meg 68030 Amiga for under 500 pounds has just been released?
NO!
What? Something even better?
YES!
A new Amiga Bulletin Board System has arrived.
WOW!
'The End Zone' – Tel: 0524 752245
Any speeds between 300 and 2400 including 1200/75, with MNP levels 4 and 5 85Mb of online storage, just waiting to be used. By YOU.

Give me a call, the BBS is available 24 hours per day, every day. And remember, the more users a BBS has, the better it becomes. Oh, and I nearly forgot, Dear *Amiga Format*, your mag ain't bad either.

Adam Purnell
Lancaster, Lancs

This is the end of this public service announcement. If you want to shamelessly plug your bulletin board, why not send us the details and we will print a list of all the boards that are on-line... It will take a couple of months to get it together, but if you want a mention, write and let us know.

MORE SPARKS

The contents of the letter 'Sparks Fly' from Issue 5 may cause more harm than good.

The wearing of polythene bags on the hands is not the correct handling method when working with integrated circuits. Polythene is probably the last material you would want in contact with the insides of a computer.

If your readers want to replace the Kickstart Chip, then an anti-static wrist strap should be worn. These are available from the high street electronic hobbies shops. I hope the above will end the confusion.

Bob Thomson
Ayr, Scotland

After reading a letter in your *Amiga Format* (Issue 5) concerning a horrified man who is qualified as a TV/Satellite engineer saying that the correct way to remove and fit the 1.3 Kickstart Rom was to wear polythene bags on your hands. I was horrified too!

Does this man who didn't say he was a computer engineer know that the most dangerous thing you can expose an IC to is static? If he did he would never have suggested wearing polythene bags on your hands before removing it (the IC) as polythene is a very good generator of static electricity. Talk about the blind leading the blind!

Static electricity brought into contact with ICs can easily cause arcing internally, breaking down its insulating layer and either destroying or, worse, wounding it.

Wounding an IC may seem impossible but what actually happens is that again the insulating layer is broken down, but only in a small area. This causes local heating of the damaged area to occur due to the insulator becoming resistive. The heating effect, in turn, causes more insulator breakdown and the area of damage gets larger until destruction of the IC occurs which may take days, weeks, months or even years to occur.

Speaking as a TI computer engineer, unless you take all the correct static control precautions I suggest any repair or modifications be carried out by qualified personnel.

Ivan Butler
Coseley, West Midlands

At this point I think it's time to call a halt to this long- running series: thanks to those that contributed. We faithfully promise that any future pieces of this nature will have comprehensive safety instructions.

OPERATION HELP

HELP! HELP! HELP! I am being held hostage by *Operation Wolf*. I have been trying to rescue others since it first came out, unfortunately the tables have been turned on me and now I am the hostage, a slave to the game. I try almost every day and yet I have still not got past the jungle screen. There are four more rounds of mayhem waiting untouched. Why-oh-why does one man have to face 355 armed enemy, 46 choppers/boats and 25 armoured cars? Even Arnold Schwarzenegger couldn't kill that lot on his own.

Is there anyone out there who can help me – there must be a cheat mode out there somewhere – please, please, please! I would love to see the other four screens.

Austin Sutter
Baughurst, Basingstoke

Any help and advice for OP Wolf*?*



Acieed! Get on down to the critical beat with 'Acidic Comment'.]

ACIDIC COMMENT

I am writing to *Amiga Format* for the first time and I must say that your mag ain't bad. The Coverdisk is another question, it could be a lot better. I suppose the playable demos have got to stay, more than anything else they provide people with a means of deciding whether or not they'll fork out the £20 on the full game. In that sense it serves a good purpose... saving people money! If the demo's rubbish they presumably won't buy the game.

However, the quality of the rest of it could improve drastically, for instance the *Acid House Demo* in December's issue was way below standard – there are plenty of good demos around including a brilliant acid one by Pseudo Ops themselves. I found the icon for it more entertaining. A few good demos could greatly enhance the disk making them collectible items in their own right.

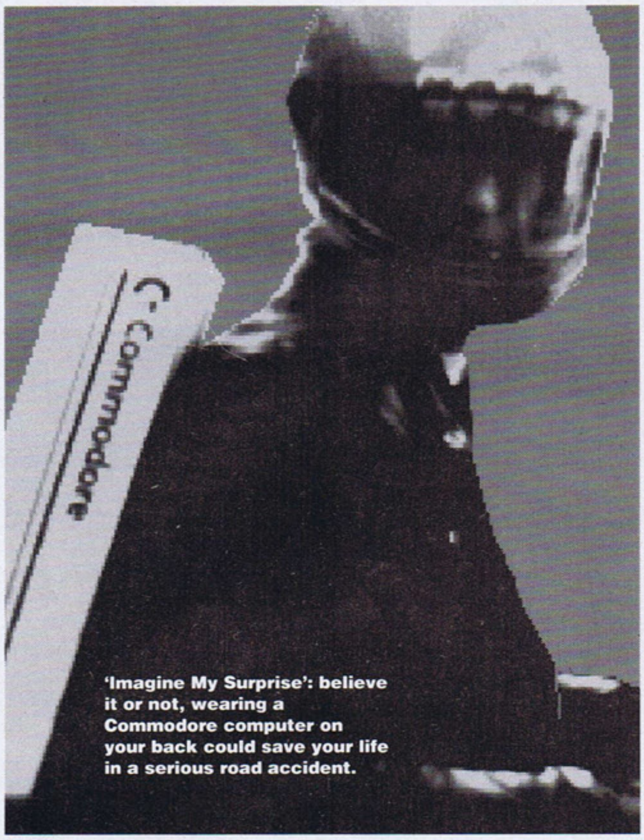
How about some old full games? I got the full version of *Eco* from another magazine, it's a game I wouldn't have paid £20 for in any circumstances but at least it's complete and there was still room for other stuff on the disk. There are quite a few old games that don't fill up a disk, so couple that with some good demos/digi-pics etc. and, hey Tesco, more people buying *Amiga Format*.

Neil Barnes
Kingstanding, Birmingham

This month, there is no game demo on the disk: we thought that for a change you might like to see some serious software before making buying decisions. As you quite rightly point out, this is one important function of the disk.

Apart from that, we always aim to provide one really valuable or effective PD utility, as represented this month by MED, a very high-quality music editor. Often this is backed up by other handy utilities that you may have missed.

The rest of the disk is mainly for entertainment, and we often include very good demos. If you missed out on the Swinging Frog animation on Issue One, for instance, try to get it: it is a



'Imagine My Surprise': believe it or not, wearing a Commodore computer on your back could save your life in a serious road accident.

classic. Sometimes, though, our hands are tied by what is available to us without copyright problems and by space on the disk: remember, we try to fill every byte of the 880K available space.

PD DEFENDER

I am writing in defence of Ray Burt-Frost who got a bit of a bashing by Chris Clifford in the December issue. I have been getting all my PD stuff from Ray for about a year and thus feel justified to put the facts straight.

If you do a simple comparison for 10 discs from both people, Mr Clifford works out at £25 all in. From Ray this would cost £10 plus £3 in postage plus £7 for blank discs (70p per disc) and 80p for a jiffy bag which adds up to total of £20.80. This is an obvious saving if you go through Ray. Also, Ray does a thing whereby after every 5 discs bought, one is copied free. Thus for an added outlay of £1.40 (for two blank discs) you get an extra £5.00 of software.

I think that Mr Clifford is attacking the wrong person, and I am certainly not putting him down in any way – he seems to have his own band of customers as does Ray, who use no-one else but him. Surely he should be attacking the impersonal companies who charge £3.00 for a disc which is unusable if you do not have a degree in CLI (Ray's are all auto-load and moron-proof), who do not check their discs for "virus", who do not return the discs almost immediately, who do not replace discs without any trouble at all, etc.

I hope this puts the record straight. Thanks.

Damion Way
Keele, Staffordshire

And thank you too, Damion. It is important to remember that the basic tenet of PD ethics is to provide the programs without profit and so very often the only charges made are for copying expenses, disk price and postage.

However, by a professional approach some PD libraries can provide a better service, obtaining software from all over the world that would cost an individual dearly in terms of time and money. Is the price of this service, and of paying staff who are there the whole time to help you, not worthwhile for all concerned?

DOUBLE DUTCH PRICING

I thought you would like to hear some honest feedback from your readers, so here it is.

First, nearly 50% of your magazine consists of pure advertisement which is, in my opinion, pure m——. I know it is essential for surviving, but so much of it? Second, some son of a b—— is trying to get rich quickly in the Netherlands from your hard work. The price of your mag here is DFL17.50 which is about £5.31. An increase of 82.48%. This, gentlemen, is daylight robbery. I belong to a fairly large computer club (around 275 members) and I decided, with my friend who owns an Amiga, to buy ONE copy between us and circulate it. We know it is not ideal but it will save us a lot of money and we will not feel like fools when we buy your mag. For your information, *Amiga User International* costs here DFL10.50, an increase of about 65% on UK price, which is still a lot less than your 82.48%. Please do something about it before we stop buying your mag altogether.

S Ahmad
Holland

The more ads we have, the more editorial pages we can squeeze in the magazine so it does work out better for all concerned. Besides, many people find the ads very useful when trying to make a purchase for their Amiga.

As for the cost of the mag abroad, there seems to be nothing we can do. We do not organise overseas distribution or pricing ourselves, so we cannot control the cost to you. Best advice is simply get it direct from us by subscribing, which over a year will save you a lot of money.

PLAY IT AGAIN, NEIL

Concerning Roger Musson's letter in Issue 5 (Why did 8-bit games have better music than today's sampled offerings?) then I can add a few things. It is faster, cheaper and easier to sample stuff than to produce an original background tune from your own efforts. I agree with you Rog, the music for *Xenon II* was awful – but have you heard the music for *Hybris?* It is also a better game in my opinion, far more playable and faster too, there may not be as many weapons but on *Xenon II* there's so many you can't see the enemy.

Neil Barnes
Kingstanding, Birmingham

All we can really say here is that the Xenon II *soundtrack was a very good translation of one of the tracks from Bomb The Bass's hit album. As this group is one of the most successful in the Acid House style, which relies very much on modern computerised techniques such as sampling, it seems like kind of an appropriate choice. You clearly favour the more traditional approach to music writing.*

It seems only fair to point out that the Amiga's eight-channel stereo soundchip should be able to produce some damn fine internally-programmed soundtracks: can anyone out there suggest some good examples, or vote for their personal favourites in Amiga games music?

IMAGINE MY SURPRISE

I have always known that Commodore build a superior computer. But to my amazement and joy, I also find that structurally it may be superior to one or two makes of car.

This remarkable discovery came after picking up my A500 from the shop and placing it into my backpack, thus enabling me to ride my motorcycle home. On the way someone drove his car out of a side-road and hit me, cuasing me to be propelled at some speed onto the road. Back first.

Not only did my computer save me from certain serious injury, but it also remained almost intact. There are only two small cracks in the casing and, most importantly, it appears that no damage was done internally whatsoever and it is in perfect working order. My backpack and motorcycle were completely written off.

So I have a simple message to computing motorcyclists everywhere. Wear a Commodore on your back: it could save your life!

M Forster
Dipton, Co Durham

What an extraordinary story, and surely good news for anyone who owns this indestructible machine! We phoned up Bob Gleadow, head of Atari UK, to ask him about the safety record of ST computers in potentially fatal road accidents, but a spokesperson told us to go away and stop being so silly. If you own an Amiga, remember: don't leave home without it! ■

STOP PRESS... NEW FACE... STOP PRESS

We just have time to welcome another new face to *Amiga Format:* this is Paul Steer, our comrade in the advertising department and right-hand person to Jennie Evans. All complaints should be addressed to The New Staff Complaints Department, care of Jason Holborn, but we think he'll do very nicely thank you John.



GURU's MEDITATION

OH DEARY, DEARY ME

Despite the poor showing on the previews pages, where all the pictures managed to be in the right place at the right time, a cock-up managed to creep in: check out Page 41!

What on Earth is that picture of *Toobin'* doing on the *Moonwalker* review page? (The backstroke, I think!) And there you go, the only real mistake in the whole issue – unless, of course, you know better...

NEXT MONTH

After this month's corking issue, next month's is going to have to be pretty damn good to keep up the standard – and it is! Reviews, PD, News, views, tutorials and a whole heap of other useful stuff. Watch out for a special feature on getting started in Video.

CAPTAIN WHINGE

...absolute rubbish, they're just like normal people, just like you and me, there's absolutely nothing special about them at all I mean if I'd bothered when I was younger I could be just as good a programmer as they are instead I prefer not to prostitute my skills for the highest paying software house and have my creativity governed and regulated by some business suited fascist bully boy, a chap writes a game that his friends like and suddenly he has to have a trendy nickname and he's unapproachable and will only talk to you when he's got his sunglasses on, people shouldn't encourage them because they only end up being swallowed by their own ego and it then takes them 30 years to write their next game because they're far too busy being important to worry about such trivial matters as getting down to some decent coding, I could have programmed those great games, that teacher didn't know what he was talking about when he said I wouldn't know an opcode from a hole in the ground – I've fallen into lots of opcodes, no trouble at all, I'm learning binary at the moment – a bit too complicated for most people but I can count up to 0010112345678900 now – I'm working on this new megagame called "unfriendly beings from another planet try to conquer the earth by shuffling about shooting down at us", it's really original and is bound to be a big hit – now if only I could work out how you turn on this newfangled ZX80 computer...



THE INSIDE STORY

Welcome to the new regular feature where your good friend Annette Curtain dishes the dirt and gives you the inside story.

Having the office in fits just lately has been Terry Tinsel, one of those plastic plants that react to sound, so called because he's a Christmas tree. Many thanks go to Danielle for that one.

Maff seems to be settling in well – Andy's given him all the dirty jobs to do – although he does have appalling taste in boots, great big black and purple things that, frankly, do nothing for him. Damien's been working his little pony tail off despite his incredible inability to wake up before midday.

The flu bug did the rounds and while everyone else got hit, Jason managed to ninja-duck it and keep going anyway (he worries me, that Jason, he's a very odd fish you know).

Despite initial worries, the Xmas/New Year drinks cabinet has swollen in the last couple of weeks thanks to some very generous software houses, so it looks like the team will start the New Year as they mean to go on - sloshed. This is Annette Curtain for Guru's Meditation signing off: see you soon!

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